DOCUMENT 369-83

POINT MUGU, CALIFORNIA

RANGE REFERENCE ATMOSPHERE
0-70 KM ALTITUDE

SEPTEMBER 1983

METEOROLOGY GROUP
RANGE COMMANDERS COUNCIL

WHITE SANDS MISSILE RANGE
KWAJALEIN MISSILE RANGE
YUMA PROVING GROUND

PACIFIC MISSILE TEST CENTER
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

FOREWORD - see attached.

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FOREWORD

Atmospheric parameters are essential to the research and development of missiles and aerospace vehicles. In the early 1960's, the need was recognized for realistic atmospheric models derived in a consistent manner for each of the several major test ranges. An atmospheric model derived from statistical data for a particular geographical location is referred to as a reference atmosphere.

The first Range Reference Atmosphere (RRA) was issued in 1963 by the Inter-Range Instrumentation Group (IRIG) for Cape Kennedy, Florida, and was followed by additional publications for several ranges up to 1974. Since that time, improved upper air data bases have become available from which to develop the RRA. These resulted from the extended period of records and from improvement in the upper air measuring program by rocketsondes for altitudes above the rawinsonde ceiling of 30 km. Revised and improved RRAs are justified for the following reasons:

1) Needs for more definitive statistical atmospheric models have arisen because of changes and advances in aerospace technology. The Space Transportation System (Space Shuttle) is one example.

2) Most ranges now have an extended and improved upper air data base from which to develop a more definitive RRA.

3) There are requirements for RRAs for new ranges and range sites.

4) There have been scientific advances in understanding the upper atmospheric structure and physical relationships.

5) Advances in statistical modeling techniques have been made because of the general availability of high-speed electronic computers. These have led to the adoption of advanced concepts in atmospheric modeling.

For these reasons, the Range Reference Atmosphere Committee (RRAC) was tasked by the Range Commanders Council Meteorology Group (RCC MG) to establish new and improved RRAs. The purpose, scope, and objectives of this task are outlined in the following paragraphs.

Purpose: This committee, Task MG-1, establishes RRAs for the several ranges as provided by the RCC. An RRA is a model of the Earth's atmosphere over a geographical location of interest, for use by DOD and other U.S. Government range users. The RRA is used to provide planning data for evaluating environmental constraints for the particular configurations of environment-sensitive systems and components being developed or undergoing tests.

Scope: Using the best available upper atmosphere data base to include rawinsonde, rocketsonde and possibly other high-altitude data sources for the range location, the task is to establish a model of certain statistics for wind and thermodynamic quantities derived in a uniform manner and published in a standardized format.

Objectives: The wind statistics shall be, insofar as practical, modeled to be consistent with rigorous mathematical probability properties of the multivariate normal probability theory. The thermodynamic quantities statistics shall be, insofar as practical, modeled to be consistent with the hydrostatic equation, the equation of state, and the probability principles that are related through these physical equations. The document shall serve as an authoritative source of information and as an atmospheric model for a particular range. The first in the series of revised RRAs to be published is for Kwajalein Missile Range (KMR) (publication date December 1982). The altitude range required for KMR is 0 to 70 km. The order of priority for the subsequent publications is:

	Range	Altitude Range Required
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9.	NASA/Wallops Flight Center, VA	0 - 70 km
10.	Taquac (Guam)	0 - 30 km
11.	PMTC/Barking Sands, HI	0 - 70 km

In keeping with the RCC's objective of standardization, the modeling techniques, basic text, and tabulation format are to be the same for all RRAs. These new and revised RRAs present not only the mean values of the thermodynamic quantities (pressure, temperature, virtual temperature, and density), but also include statistical measures for the dispersion (i.e., standard deviations and skewness coefficients). New quantities presented are water vapor pressure and dewpoint temperature. The statistical modeling for the wind is entirely new. The new approach uses the properties of the bivariate normal probability distribution function.

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b. Consider augmenting data base from Ely or Salt Lake City.

All final computations were performed by the United States Air Force Environmental Technical Applications Center (USAFETAC) in response to a task from Eastern Space and Missile Center (ESMC).

The text was prepared jointly by USAFETAC and the NASA/George C. Marshall Space Flight Center's Space Sciences Laboratory, Atmospheric Sciences Division. The editing and preparation of the draft manuscript were performed by the NASA/MSFC organization.

The cochairmen express their gratitude to all RRAC members and their respective colleagues who have made significant technical contributions to the establishment of these RRAs.

Special thanks are tendered to Lt. B. Novograd for his dilligence in forming the many computations and the development of the primary tables, I through IV. Special thanks goes to Lt. F. Wirsing for editing and formulating the equations for the derivable thermodynamic equations. These gentlemen performed this outstanding work under the direction of Major B. Lilius, USAFETAC.

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The RRAC consists of representatives from the U.S. Air Force, U.S. Army, National Aeronautics and Space Administration, U.S. Navy, and National Oceanic and Atmospheric Administration. The committee members for the RRA for the first publication are:

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O. H. Daniel, ESMC
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F. G. Finger, NOAA/NWS
E. E. Fisher, HQ AFSC
B. R. Hixon, PMTC
J. M. Hobbie, KMR
E. J. Keppel, AD
S. F. Kubinski, WSMR
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Cochairman, USAF/ETAC

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0-70 KM ALTITUDE

September 1983

Prepared by

Range Reference Atmosphere Committee
Meteorology Group
Range Commanders Council

Published by

Secretariat
Range Commanders Council
White Sands Missile Range, New Mexico 88002

TABLE OF CONTENTS

LIST OF ORGANIZATION ACRONYMS

AD	Armament Division
AFFTC	Air Force Flight Test Center
AFSC	Air Force Systems Command
AFSC/AFGL	AFSC/Air Force Geophysics Laboratory
AFSC/SD	AFSC/Space Division
AFSCF	Air Force Satellite Control Facility
AFTFWC	Air Force Tactical Fighter Weapons Center
AWS	Air Weather Service
BMD	Ballistic Missile Division
DOD	Department of Defense
DOE	Department of Energy
DOE/NTS	DOE/Nevada Test Site
DPG	Dugway Proving Ground
ESMC	Eastern Space and Missile Center
ETR	Eastern Test Range
KMR	Kwajalein Missile Range
NASA	National Aeronautics and Space Administration
NASA/MSFC	NASA/Marshall Space Flight Center
NASA/WFC	NASA/Wallops Flight Center
NOAA	National Oceanic and Atmospheric Administration
NWC	Naval Weapons Center
PMTC	Pacific Missile Test Center
USA/DTC	U.S. Army/Deseret Test Center
USAECOM	U.S. Army Electronics Command
USAFETAC	United States Air Force Environmental Technical Applications Center

UTTR	Utah Test and Training Range
WSMC	Western Space and Missile Center
WSMR	White Sands Missile Range
WTR	Western Test Range
YPG	Yuma Proving Ground
6585TG	6585th Test Group
TSCF	Targeting Systems Characterization Facility

FOREWORD

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CHAPTER I. INTRODUCTION

A. Definition and Purpose of the Range Reference Atmosphere

A.1 Definition

A reference atmosphere is a statistical model of the Earth's atmosphere derived from upper air measurements over a particular geographical location. Hence, these Range Reference Atmospheres (RRAs) are atmospheric models developed by the Range Reference Atmosphere Committee (RRAC) in response to a task by the Range Commanders Council Meteorology Group (RCC MG) and published by the RCC Secretariat. The RCC MG, formerly called the Inter-Range Instrumentation Group/Meteorology Working Group (IRIG/MWG), published a series of RRAs during the period 1963 through 1974.

A.2 Purpose

A series of revised and expanded RRAs are to be published for locations of interest to the RCC. These publications are to serve as authoritative reference sources on certain upper air statistics and as atmospheric models for particular range sites. The technical usefulness of these documents for the ranges, range users, U.S. aerospace industries, and the scientific community is recognized because of the standardization of the development techniques and the presentation of the tabulations.

B. Scope of the Range Reference Atmosphere and Arrangement of Tables

B.1 Scope

The RRA contains tabulations for monthly and annual means, standard deviations, and skewness coefficients for windspeed, pressure, temperature, density, water vapor pressure, virtual temperature, and dewpoint temperature; the means and standard deviations for the zonal (U) and meridional (V) wind components; and the linear (product moment) correlation coefficient between the wind components. These statistical parameters are tabulated at the station elevation, at 1-km intervals from sea level to 30 km, and at 2-km intervals from 30 to 90 km. The wind statistics are given at approximately 10 m above the station elevations and at altitudes with respect to mean sea level thereafter. For those range sites without rocketsonde measurements, the RRAs terminate at 30 km altitude, or they are extended, if required, when rocketsonde data from a nearby launch site are available. There are four sets of tables for each of the 12 monthly reference periods and the annual reference period.

B.2 Arrangement of Tables

The statistical parameters for the RRA models are presented in four tables, as outlined in the following paragraphs.

Table I contains all the wind statistical parameters. This table gives the monthly and annual means and standard deviations of the U and V wind components and the linear (product moment) correlation coefficient between these

two components; the mean, standard deviation and skewness coefficient of the windspeed; and the number of wind observations (sample size).

Table II contains the monthly and annual means, standard deviations, and skewness values of pressure, temperature, and density, and the number of observations used for each of these thermodynamic quantities.

Table III contains the monthly and annual means, standard deviations and skewness values of the water vapor pressure, virtual temperature and dewpoint, and the number of observations for each of these moisture-related quantities. The statistical parameters for water vapor pressure and dewpoint terminate at 15 km altitude. Above 15 km the statistical parameters for virtual temperature are considered to be the same as those for temperature.

Table IV contains the monthly and annual mean atmospheric models for the thermodynamic variables: pressure, virtual temperature, and density. This table is derived from the monthly and annual mean virtual temperature versus altitude (geometric) using the hydrostatic equation and the equation of state. Also presented is the geopotential height corresponding to the tabulated geometric altitudes.

The physical unit for all wind parameters is meters per second. The physical unit for pressure is millibars; for temperature and virtual temperature, degrees Kelvin; for density, grams per cubic meter; and for water vapor pressure, millibars. In all cases the skewness coefficient and the correlation coefficient between wind components are unitless. All reference to altitude is geometric altitude and is expressed in kilometers. All reference to height is geopotential height and has the unit geopotential meters or kilometers. All geometric altitudes and geopotential heights are with respect to mean sea level.

C. Data Quality Control Procedures

A small portion (less than 10 percent) of the soundings in the data base used to calculate the RRA tables contained erroneous data values. The soundings which contained these erroneous values were eliminated from the data base using the following procedures:

1) Soundings containing gaps in their height data greater than 200 mb were rejected. This step was taken because some soundings only contained height values at their "mandatory" pressure levels, which were occasionally missing, resulting in soundings with no height information at all.

2) An initial set of RRA statistics was computed using all the remaining soundings. This initial set of statistics was used to determine data limits for the temperature, pressure, U and V components of the wind, and the dewpoint (for the 0- to 30-km portion of the RRA) or the density (for the 30- to 90-km portion of the RRA). The lower (upper) data limits were set at the mean value for a specific parameter, minus (plus) six standard deviations of that quantity. One pair of data limits was computed for each of these parameters: month of the year and data level.

3) This initial set of data limits was then used to screen the data base. All the soundings that contained values outside these data limits were rejected. A new RRA was then computed using the screened data base. This second RRA was used to generate a second set of data limits.

4) The second set of data limits was then used to screen the data base further. A new RRA was again generated. The skewness values in this RRA were then evaluated, according to empirical criteria specified in section II.A.3 of this document for the winds, and according to criteria in section III.A.3 for the thermodynamic quantities. If these criteria were satisfied, the new RRA was then used to generate a final set of data limits, which were used to control the quality of the data base for the final version of the RRA.

5) Occasionally, the third RRA that was generated did not satisfy all of the skewness criteria. This indicated that some incorrect values were still present in the data base. To complete quality control, steps 3 and 4 were repeated for additional iterations (usually one or two) until the resulting RRA satisfied the skewness criteria. At that point, a final set of data limits was generated. This final set of data limits was then used to control the quality of the data base and generate the final RRA.

D. Organization of the Chapters

Because there are plans to publish a series of RRAs, comments on the special organization of the document are in order. The RRA document is arranged in four chapters. Chapter I is the introduction. Chapter II, Wind Statistics and Models, contains the techniques used to arrive at the wind statistical parameters, table I, and the probability functions that are to be used as wind models to derive several wind statistics. Chapter III, Statistics of Thermodynamic Quantities and Models, contains the techniques used to arrive at the thermodynamic and moisture-related statistical parameters given in tables II and III and the atmospheric thermodynamic model presented in table IV. This chapter also contains sets of equations to calculate several atmospheric properties. Chapter IV contains the general conclusions and recommendations. These four chapters are reprinted without change for each documented RRA to assure consistency and for expediency in preparing the documentation. To account for variations particular to a specific RRA, two appendixes have been included. Appendix A, Examples of Wind Statistics, is designed to give a few illustrative examples of wind statistics for the specific RRA and cursory observations, comparisons, or comments on wind statistics. Appendix B, Range Specific Information, is designed to present specific information particular to the range, such as geographical location, data base, etc., and any cursory observations or comments on the thermodynamic quantities.

Read these appendixes! They are located as the last two units in the document because they may vary in length depending on the circumstances. Appendixes A and B and tables I, II, III, and IV are the only differences among the RRA documents published in this new RRA series.

CHAPTER II. WIND STATISTICS AND MODELS

A. General Considerations

A.1. Objectives

An objective of the RRA is to furnish minimum tabulation for the wind statistics. To meet this objective, the bivariate normal probability distribution was adopted as a statistical model for the wind treated as a vector quantity at the RRA data levels. Only five statistical parameters are required to completely describe this probability function. In Cartesian coordinates these parameters are the means and standard deviations of the two orthogonal components and the correlation coefficient between the two components. These five statistical parameters for the U and V (meteorological coordinates) components are given in table I. The statistical properties of the bivariate normal probability distribution are used to derive many wind statistics that are of interest to the ranges and range users. This procedure produces consistent wind statistics that are connected through rigorous mathematical probability functions. By using these functions, extensive tabulations of wind statistics are avoided.

The statistical properties of the bivariate normal probability distribution presented for the vector wind statistical model are:

1) The wind components are univariate normally distributed.

2) The conditional distribution of one component given a value of the other component is univariate normally distributed.

3) The windspeed is of the form of a generalized Rayleigh distribution.

4) The frequency distribution of wind direction can be derived.

5) The conditional distribution of windspeed given a value of wind direction (wind rose) can be derived.

6) The five tabulated wind statistical parameters with respect to the meteorological U and V coordinate system can be derived for any arbitrary rotation of the orthogonal axes.

The probability distribution functions and sets of equations to derive wind statistics for the previously stated properties of the vector wind model are presented in this chapter. Symbols used are summarized in table A. Illustrative examples are presented in appendix A. No attempt is made to give the derivation of the probability functions. The reader is referred to Smith (1976) for some derivations and several applications of the probability distribution properties for wind statistics.

A.2. Data Quality Control

The U and V components of the wind were used to generate data limits set at plus and minus six standard deviations from the mean for each of the

TABLE A. LIST OF SYMBOLS USED IN CHAPTER II

N - The number of wind measurements in table I

r - A general variable for the bivariate normal probability distribution in polar coordinates

R - A generalized Rayleigh variable used for derived windspeed probability distribution

R (U, V) - The linear (product moment) correlation coefficient between the zonal and meridional wind components in table I

SK (W) - Skewness parameter for windspeed in table I

S (U) - The standard deviation of the zonal wind component in table I

S (V) - The standard deviation of the meridional wind component in table I

S (W) - The standard deviation of windspeed in table I

t - A standardized normal variate used in text table B

U - The zonal wind component

UBAR - The mean value of the zonal wind component in table I

V - The meridional wind component

VBAR - The mean value of the meridional wind component in table I

W - Windspeed or modulus of wind vector, a scalar quantity

WBAR - The mean value of windspeed in table I

X - A general component variable or coordinate axis

Y - A general component variable or coordinate axis

$\bar{X}$ - A general component mean value in the [x,y] coordinate system

$\bar{Y}$ - A general component mean value in the [x,y] coordinate system

α (alpha) - Rotation angle for the [x,y] coordinate system

TABLE A. (concluded)

θ (theta) - Wind direction in the polar coordinate system

$\lambda_{(\ )}$ (Lambda) - A parameter in the bivariate normal probability distribution in text table C

ξ (Xi) - The mean value in the standardized normal probability distribution used in text table B

π (Pi) - Constant = 3.14159 ...

ρ (Rho) - The general linear correlation coefficient between the two component variables in the [x,y] coordinate system

σ_x, σ_y - The general standard deviations of the x and y component variables in the [x,y] coordinate system.

quantities. These data limits were used to screen the wind data base, as described in section I.C. The data base was considered to be free from errors under the following conditions:

1) The skewness of the windspeed was below 4.0 at data levels where the mean windspeed was less than 15 m/s, and

2) The skewness of the windspeed was below 2.5 at data levels where the mean windspeed was greater than 15 m/s.

A.3 Limitations

For the wind statistics, the correlation coefficients for like wind components and unlike wind components between altitude levels were not computed. Therefore, wind statistics with respect to altitude (profile) cannot be derived from the RRA statistics. For wind profile modeling techniques the user is referred to Smith (1976). However, the wind statistics at discrete altitudes are valid; all of the probability distribution functions given in chapter II can be derived from the five wind component statistical parameters contained in table I, and the derived distributions can be considered as wind models at discrete altitudes.

By convention, in the statistical literature Greek letters are used for population or theoretically known parameters, and sample estimates are denoted by English alphabetical letters or with a "hat" ($\hat{}$) over the Greek letters. In chapter II Greek letters are used for the variances and the linear correlation coefficient, and the means are denoted by $\overline{X}$ and $\overline{Y}$ when dealing with the bivariate normal distribution. It will always be understood that table I contains sample estimates of the statistical parameters and they are with respect to the meteorological U and V coordinate system.

B. Coordinate System and Computation of Statistical Parameters

B.1. Coordinate System

Wind measurements are recorded in terms of magnitude and direction. The wind direction is measured in degrees clockwise from true north and is the direction from which the wind is blowing. The wind magnitude (the modulus of the vector) is the scalar quantity and is referred to as windspeed or scalar wind. A statistical description that accounts for the wind as a vector quantity is appropriate and requires a coordinate system.

For the RRA the standard meteorological coordinate system has been chosen for the wind statistics, all tables of statistical parameters, and related discussions because the coordinate system used in aerospace and related applied fields has not always been consistent.

Using figure 1, the polar and Cartesian forms for the meteorological coordinate system are defined:

W = windspeed, scalar wind, or magnitude of the wind vector in meters per second.

θ = wind direction. θ is measured in degrees clockwise from true north and is the direction from which the wind is blowing.

U = zonal wind component, positive west to east, in meters per second.

V = meridional wind component, positive south to north, in meters per second.

The components θ and W define the polar form, and the U-V components define the Cartesian forms:

$$U = -W \sin\theta \quad , \quad 0 \leq \theta \leq 360^\circ \tag{1}$$

$$V = -W \cos\theta \quad . \tag{2}$$

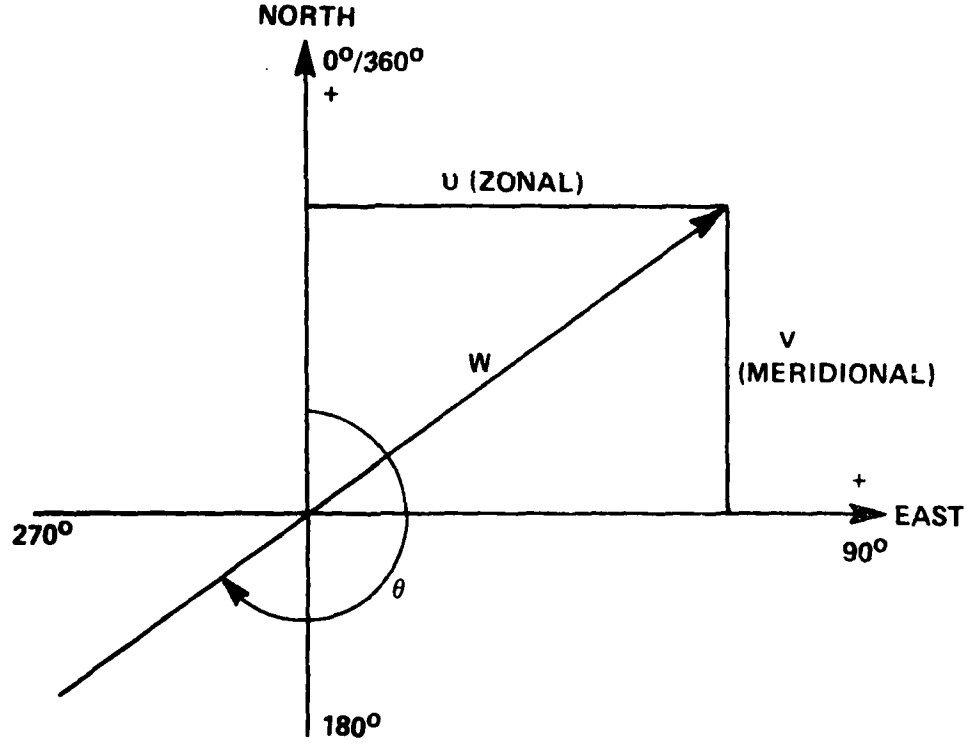


Figure 1. The meteorological coordinate system.

It is helpful to note the difference between the mathematical convention for a vector direction and the meteorological convention for wind direction:

$$\theta \text{ met} = 270 - \theta \text{ math} \tag{3}$$

when $0 \leq \theta$ math $\leq 270°$

$$\theta \text{ met} = 360 + (270 - \theta \text{ math})$$

when $270 \leq \theta$ math $\leq 360°$

B.2 Computation of Statistical Parameters

The wind statistical parameters in table I for the means and standard deviations of the U and V wind components and windspeed and the skewness parameter of windspeed were computed using the sums technique presented in chapter III.C.3. In addition, the linear (product moment) correlation coefficient between the U and V wind components, r (u,v) in table I, was computed. This correlation coefficient is defined as

$$r\,(u,v) = \frac{\sum_{i=1}^{n} (U_i - \bar{U})\,(V_i - \bar{V})}{N\ s(u) \cdot s(v)} \quad . \tag{4}$$

These statistical parameters are with respect to the Standard Meteorological Coordinate System.

C. Statistical Wind Models

C.1. Wind Component Statistics

The univariate normal (Gaussian) probability distribution function is used to obtain wind component statistics. In generalized notations, this probability density function (pdf) is

$$f\,(t) = \frac{e^{-\frac{t2}{2}}}{\sqrt{2\pi}} \quad , \tag{5}$$

where $t = X - \xi/\sigma_x$ is the standardized variate, with ξ defining the mean and σ_x the standard deviation. The probability distribution function (PDF) is

$$F(X) = \int_{-\infty}^{X} f(t)\,dt \quad . \tag{6}$$

Because t is integral cannot be obtained in closed form, it is widely tabulated for zero mean and unit standard deviation. For a convenient reference for the RRA, selected values of F(X) are given in table B. To emphasize the connotation of probability, F(X) is shown in table B as $P\{X\}$.

The t values in table B are used as multiplier factors to the standard deviation to express the probability that a normally distributed variable, X, is less than or equal to a given value as

$$P\{X \leq \text{mean} + t\ \sigma_x\} = \text{probability, p} \quad . \tag{7}$$

For example, when t = 1.6449, the probability that X is less than or equal to the mean plus 1.6449 standard deviations is 0.95. That value of X that is less than or equal to the mean plus 1.6449 standard deviations is called the 95th percentile value of X. Also given in table B are the numerical values to express the probability that X falls in the interval X_1 and X_2; i.e.,

$$P\{X_1 \leq X \leq X_2\} = \text{Interpercentile Range} \ , \tag{8}$$

where

$$X_1 = \bar{X} - t\ \sigma_x$$

$$X_2 = \bar{X} + t\ \sigma_x \quad .$$

For t = 1.9602 the probability that X lies in the interval X_1 and X_2 is 0.95. The values of X_1 and X_2 in this example comprise the 95th interpercentile range.

For a normally distributed variable, the mode (most frequent value) and the median (50th percentile value) are the same as the mean value. The means and standard deviations of the U and V wind components from table 1 are used in equations (7) and (8) to compute the percentile values and interpercentile ranges of the U and V wind components. When equation (7) is illustrated on a normal probability graph, a straight line is formed.

C.2. The Vector Wind Model

Because wind is a vector quantity having direction and magnitude that can be expressed as two components in an orthogonal coordinate system, a probability model that describes the joint relationship is the bivariate normal probability distribution. In general component notation, the bivariate normal probability density function (BNpdf) is

TABLE B. VALUES OF t FOR STANDARDIZED NORMAL (UNIVARIATE) DISTRIBUTION FOR PERCENTILES AND INTERPERCENTILE RANGES

t	P(X)	X	$P\{X_1 \leq X \leq X_2\}$ (%)
-3.0000	0.00135	ξ - 3.0000 σ	99.73 (0.27)
-2.5758	0.00500	ξ - 2.5758 σ	99 (1.00)
-2.3263	0.01000	ξ - 2.3263 σ	98 (2.00)
-2.2365	0.01266	ξ - 2.2365 σ	97.468 (2.532)
-2.0000	0.02275	ξ - 2.0000 σ	95.45 (4.55)
-1.9602	0.02500	ξ - 1.9602 σ	95 (5)
-1.6449	0.05000	ξ - 1.6449 σ	90 (10)
-1.2816	0.10000	ξ - 1.2816 σ	80 (20)
-1.0000	0.15866	ξ - 1.0000 σ	68.268 (31.732)
-0.8416	0.20000	ξ - 0.8416 σ	60 (40)
-0.6745	0.25000	ξ - 0.6745 σ	50 (50)
-0.2533	0.40000	ξ - 0.2533 σ	20 (80)
0.0000	0.50000	ξ	
0.2533	0.60000	ξ + 0.2533 σ	
0.6745	0.75000	ξ + 0.6745 σ	
0.8416	0.80000	ξ + 0.8614 σ	
1.0000	0.84134	ξ + 1.0000 σ	
1.2816	0.90000	ξ + 1.2816 σ	
1.6449	0.95000	ξ + 1.6449 σ	
1.9602	0.97502	ξ + 1.9602 σ	
2.0000	0.97725	ξ + 2.0000 σ	
2.2365	0.98734	ξ + 2.2365 σ	
2.3263	0.99000	ξ + 2.3263 σ	
2.5758	0.99500	ξ + 2.5758 σ	
3.0000	0.99865	ξ 3.0000 σ	

where $X_1 = \xi - t\sigma$
and $X_2 = \xi + t\sigma$

$$f(X,Y) = \frac{1}{2\pi\sigma_x\sigma_y\sqrt{1-\rho^2}}\left[\exp\ \frac{-1}{2(1-\rho^2)}\left\{\frac{(X-\bar{X})^2}{\sigma_x^2}\right.\right.$$

$$\left.\left. - \frac{2\rho(X-\bar{X})(Y-\bar{Y})}{\sigma_x\sigma_y} + \frac{(Y-\bar{Y})^2}{\sigma_y^2}\right\}\right] \quad -\infty \leq X \leq \infty \text{ and}$$

$$-\infty \leq Y \leq \infty \quad , \tag{9}$$

where the five parameters are $\bar{x},\bar{y}$, the component means; σ_x, σ_y, the component standard deviations; and ρ, the correlation coefficient between the two component variables, X and Y.

For many applications the interest is in determining the probability that a point $\{X,Y\}$ will fall within a contour of equal probability density. The exponential terms of equation (9), when set equal to a constant, λ^2, give a family of ellipses depending on the value of the constant. The ellipses have a common center at the point $\{\bar{X},\bar{Y}\}$. Integration of equation (9) over the region bounded by the contours of equal probability density gives

$$P(\lambda) = 1 - e^{\frac{-\lambda^2}{2(1-\rho^2)}} \quad . \tag{10}$$

Solving for λ^2 and replacing $P(\lambda)$ by p gives

$$\lambda^2 = -2(1-\rho^2)\ln(1-p) \quad . \tag{11}$$

Now define

$$\lambda_e = \sqrt{2}\sqrt{-\ln(1-p)} \quad . \tag{12}$$

For ready reference and comparisons, λ_e is shown in table C for selected values of p.

TABLE C. VALUES OF λ FOR BIVARIATE NORMAL DISTRIBUTION ELLIPSES AND CIRCLES

P(%)	λ_c (ellipse)	λ_c (circle)	P(%)	λ_c (ellispe)	λ_c (circle)
0.000	0.0000	0.0000	65.000	1.4490	1.0246
5.000	0.3203	0.2265	68.268	1.5151	1.0713
10.000	0.4590	0.3246	70.000	1.5518	1.0973
15.000	0.5701	0.4031	75.000	1.6651	1.1774
20.000	0.6680	0.4723	80.000	1.7941	1.2686
25.000	0.7585	0.5363	85.000	1.9479	1.3774
30.000	0.8446	0.5972	86.466	2.0000	1.4142
35.000	0.9282	0.6563	90.000	2.1460	1.5175
39.347	1.0000	0.7071	95.000	2.4477	1.7308
40.000	1.0108	0.7147	95.450	2.4860	1.7579
45.000	1.0935	0.7732	98.000	2.7971	1.9778
50.000	1.1774	0.8325	98.168	2.8284	2.0000
54.406	1.2533	0.8862	98.889	3.0000	2.1213
55.000	1.2637	0.8936	99.000	3.0348	2.1460
60.000	1.3537	0.9572	99.730	3.4393	2.4320
63.212	1.4142	1.0000	99.9877	4.2426	3.0000

$$\lambda_c = \sqrt{2}\sqrt{-\ln(1-P)}$$

$$\lambda_c = \sqrt{-\ln(1-P)}$$

The probability ellipse that contains p-percent of the wind vectors expressed in the most general form is the conic defined by

$$AX^2 + BXY + CY^2 + DX + EY + F = 0 \quad , \tag{13}$$

where

$$A = \sigma_y^2$$

$$B = -2\rho\sigma_x\sigma_y$$

$$C = \sigma_x^2$$

$$D = 2\sigma_x\sigma_y\ \rho\bar{Y} - 2\sigma_y^2\bar{X} = -\ (B\bar{Y} + 2A\bar{X})$$

$$E = 2\sigma_x\sigma_y\ \rho\bar{X} - 2\sigma_x^2\bar{Y} = -\ (B\bar{X} + 2C\bar{Y})$$

$$F = A\bar{X}^2 + C\bar{Y}^2 + B\bar{X}\bar{Y} - AC\ (1 - \rho^2)\ \lambda_e^2 \quad ,$$

and

$$\lambda_e = \sqrt{2}\ \sqrt{-\ln\ (1 - p)} \quad .$$

For graphical presentations, the range of the variable is important in order to arrange the scale. The largest and smallest values of X and Y for a given probability ellipse, p, are given by

$$X_{L,S} = \bar{X} \pm \sigma_x\lambda_e \tag{14}$$

$$Y_{L,S} = \bar{Y} \pm \sigma_y\lambda_e \quad , \tag{15}$$

where, as before, $\lambda_e = \sqrt{2}\ \sqrt{-\ln\ (1 - p)}$.

Although there are several approaches to graphing the probability ellipses, the following procedure is advantageous for electronic computer plotting. In establishing the computer plotting program, the sample estimates for $\overline{X},\overline{Y}$, σ_x, σ_y, and ρ are constants in equation (13). The user makes the choice of probability ellipses desired. Thus, p in equation (12) is programmed as a parameter. The largest and smallest values for X and Y are computed by equations (14) and (15) for the largest probability ellipse selected. This sets the graphical scale. Values of X within the range of "X smallest" to "X largest" are obtained by incrementing X between these limits. Using the quadratic equation, a solution for Y of equation (13) is made and plotted for each value of X. The centroid $(\overline{X},\overline{Y})$ for the family of probability ellipses is plotted as a point. Labeling and other identification complete the plotting program.

For a given probability, equation (13) defines an ellipse that contains p-percent of the points X,Y. Since the entire area under the bivariate normal density function [equation (9)] is unity, upon integration for a given probability ellipse, that given ellipse contains p-percent of the total area. In the wind statistics, p-percent of the wind vectors fall within the specified probability ellipse. From this point of view, a specified probability ellipse gives the joint probability that p-percent of the U-V components lie within the given ellipse.

When $\sigma_x^2 = \sigma_y^2 = \sigma^2$ and $\rho = 0$ in the bivariate normal distribution, the probability ellipses of equation (13) reduce to circles whose centers are at the means $\overline{X},\overline{Y}$. The radii of the probability circles are $\sigma_{V1}\lambda_c$, where

$$\sigma_{V1} = \sqrt{2\sigma^2} \tag{16}$$

and

$$\lambda_c = \sqrt{-\ln\ (1 - p)} \quad . \tag{17}$$

Values for λ_c for selected probabilities, p, are given in table C.

Because this function is simple, it can easily be graphed manually. However, the generalized plotting technique for electronic computer plotters, as represented by equation (13), can be advantageously used.

C.3. Derive Distributions for Wind Statistics

In this subsection the probability distribution functions and sets of equations are presented to derive certain probability distribution functions for wind statistics. These derived probability distributions are:

1) The conditional distribution of wind components

2) The generalized Rayleigh distribution for windspeed

3) The distribution for wind direction

4) The conditional distribution of windspeed given a wind direction (wind rose).

The required five statistical parameters for these derived distributions for wind statistics are given in table I.

C.3.1 The Conditional Distribution of Wind Components

Given that two random variables X and Y are bivariate normally distributed, the conditional distribution $f(Y|X)$ is read as $f(Y)$ given X, and likewise $f(X|Y)$ is read as $f(X)$ given Y. The conditional probability distribution function $F(Y|X)$ has the mean $E(Y|X)$ and variance $\sigma^2_{(x|y)}$, where

$$E(Y|X^*) = \bar{Y} + \rho\left(\frac{\sigma_y}{\sigma_x}\right)(X^* - \bar{X}) \tag{18}$$

and

$$\sigma^2_{(y|x^*)} = \sigma_y{}^2\,(1 - \rho^2) \quad . \tag{19}$$

The conditional standard deviation is

$$\sigma_{(y|x^*)} = \sigma_y \sqrt{1 - \rho^2} \quad . \tag{20}$$

By interchanging the variables and parameters, the conditional distribution function for $F(X|Y^*)$ has the conditional mean

$$E(X|Y^*) = \bar{X} + \rho\left(\frac{\sigma_x}{\sigma_y}\right)(Y^* - \bar{Y}) \quad , \tag{21}$$

conditional variance

$$\sigma^2_{(x|y^*)} = \sigma_x{}^2 (1 - \rho^2) \quad , \tag{22}$$

and conditional standard deviation

$$\sigma_{(x|y^*)} = \sigma_x \sqrt{1 - \rho^2} \quad . \tag{23}$$

The preceding conditional probability distribution functions are univariate normal distributions for a (fixed) given value for one of the bivariate normal variables. Thus, the t-values given in table B are applicable for conditional probability statements. For example,

$$F(Y|X^*) = E(Y|X^*) + t\sigma_{(y|x^*)} \quad . \tag{24}$$

For t = 1.6449 there is a 95 percent chance that Y is less than or equal to $\bar{Y} + 1.6449\ \sigma_{(y|x^*)}$ given that $X = X^*$. In symbols this statement reads

$$P\left\{ Y \leq E(Y|X^*) + 1.6449\ \sigma_{(y|x^*)} \ \middle|\ X = X^* \right\} = 0.9500 \quad . \tag{25}$$

Interval probability statements can also be made; namely,

$$P\left\{ Y_1 = E(Y|X^*) - t\sigma_{(y|x^*)} \leq Y \leq Y_2 = E(Y|X^*) + t\sigma_y \ \middle|\ X = X^* \right\}$$

where X^* can take on any fixed value of X, but a convenient arrangement is to let $X^* = \bar{X} + t\sigma_x$.

The close connection of the regression function of Y on X to the conditional mean for the bivariate normal distribution is noted; namely,

$$Y = \bar{Y} + \rho\left(\frac{\sigma_y}{\sigma_x}\right)(X - \bar{X}) \quad . \tag{26}$$

Similarly, the regression function of X on Y is

$$X = \bar{X} + \rho\left(\frac{\sigma_y}{\sigma_x}\right)(Y - \bar{Y}) \quad . \tag{27}$$

These are linear functions and express the same results as would be obtained from a least-squares regression line.

C.3.2. The Generalized Rayleigh Distribution for Windspeed

If two random variables, X and Y, are bivariate normally distributed, then the probability distribution for the modulus, R, can be derived in terms of the five parameters that define the bivariate normal distribution.

$$R = \sqrt{X^2 + Y^2} \tag{28}$$

The distribution of R so derived is called a generalized Rayleigh distribution because there are no restrictions on the parameters. For applications to the RRA, the variable R is recognized as windspeed or the modulus of the wind vector.

The probability density function for R is expressed as

$$f(R) = a_0 R e^{-a_1 R^2}\left[I_0(a_2 R^2)\, I_0(a_3 R) + 2\sum_{k=1}^{\infty} I_k(a_2 R^2)\, I_{2k}(a_3 R)\cos 2k\psi \right] \quad R \geq 0 \quad . \tag{29}$$

The functions $I_0(\cdot)$, $I_k(\cdot)$, and $I_{2k}(\cdot)$ are the modified Bessel functions of the first kind for zero order, kth order, and 2kth order. The coefficients are

$$a_0 = \exp\left[-\frac{1}{2}\left\{\frac{\bar{X}^2}{\sigma_a^2} + \frac{\bar{Y}^2}{\sigma_b^2}\right\}\right] \Big/ \sigma_a\sigma_b \quad ,$$

where σ_a^2 and σ_b^2 are the rotated variances to produce zero correlation between X and Y. σ_a and σ_b are the positive and negative roots[1] of the expression

$$\sigma^2_{(+,-)} = \frac{1}{2}\left\{\sigma_x^2 + \sigma_y^2 \pm \left[(\sigma_x^2 + \sigma_y^2)^2 - 4\sigma_x^2\sigma_y^2(1 - \rho^2)\right]^{1/2}\right\} \quad ,$$

$$a_1 = (\sigma_x^2 + \sigma_y^2)/4(1 - \rho^2)\,\sigma_x^2\sigma_y^2 \quad ,$$

$$a_2 = \frac{\left[(\sigma_x^2 - \sigma_y^2)^2 + 4\rho^2\sigma_x^2\sigma_y^2\right]^{1/2}}{4(1 - \rho^2)\,\sigma_x^2\sigma_y^2} \quad ,$$

$$a_3 = \left[\left(\frac{\bar{X}}{\sigma_a^2}\right)^2 + \left(\frac{\bar{Y}}{\sigma_b^2}\right)^2\right]^{1/2} \quad ,$$

1. *This computational form is obtained from the determinant*

$$\begin{vmatrix} \sigma_x^2 - K & \sigma_x\sigma_y\rho \\ \sigma_x\sigma_y\rho & \sigma_y^2 - K \end{vmatrix} ,$$

where K is $\sigma^2_{(+,-)}$, *and* σ_a *and* σ_b *are analogous to the standard deviation of the major and minor axes of the bivariate normal probability ellipse.*

and

$$\tan \psi = \frac{\bar{Y}}{\bar{X}} \frac{\sigma_a^2}{\sigma_b^2} \quad .$$

Since this density function cannot be integrated in closed form from zero to R, numerical integration is used to obtain practical results for the probability distribution function; i.e.,

$$F(R) = \int_0^{R^*} f(R)\, dR \quad . \tag{30}$$

A number of special cases can be obtained from the general Rayleigh distribution [equation (29)], the simplest of which is to let $\sigma_x \equiv \sigma_y = \sigma$ and $\bar{X} = \bar{Y} = 0$ with independent variables X and Y. This gives

$$f(R) = \frac{R}{\sigma^2} e^{-R^2/2\sigma^2} \quad , \tag{31}$$

which is recognized as the classical Rayleigh probability density function. The density function, equation (31), can be integrated in closed form over any range of the variable R. Hence, the probability distribution function, F(R), fo· equation (31) is

$$F(R) = 1 - \exp\left\{\frac{-R^2}{2\sigma^2}\right\} \quad . \tag{32}$$

C.3.3. The Derived Distribution of Wind Direction

Considering the wind as a vector quantity and bivariate normally distributed, the wind direction can be derived. This is done by first writing the bivariate normal probability density function in polar coordinates whose variables are

$$g(r,\theta) = rd_1 e^{-\frac{1}{2}(a^2r^2 - 2br + c^2)} \quad , \qquad (33)$$

(see footnote 2)

where

$$a^2 = \frac{1}{(1-\rho^2)}\left[\frac{\sin^2\theta}{\sigma_x^2} - \frac{2\rho\cos\theta\sin\theta}{\sigma_x\sigma_y} + \frac{\cos^2\theta}{\sigma_y^2}\right] \quad ,$$

$$b = \frac{-1}{(1-\rho^2)}\left[\frac{\bar{x}\sin\theta}{\sigma_x^2} - \frac{\rho(\bar{x}\cos\theta + \bar{y}\sin\theta)}{\sigma_x\sigma_y} + \frac{\bar{y}\cos\theta}{\sigma_y^2}\right] \quad ,$$

$$c^2 = \frac{1}{(1-\rho^2)}\left[\frac{\bar{x}^2}{\sigma_x^2} - \frac{2\rho\bar{x}\bar{y}}{\sigma_x\sigma_y} + \frac{\bar{y}^2}{\sigma_y^2}\right] \quad ,$$

$$d_1 = \frac{1}{2\pi\sigma_x\sigma_y\sqrt{1-\rho^2}} \quad ,$$

$r = \sqrt{x^2 + y^2}$ is the modulus of the vector or speed, and θ is the direction of the vector. After integrating $g(r,\theta)$ over $r = 0$ to ∞, the probability density function of θ is

$$g(\theta) = \frac{d_1}{a^2} e^{-\frac{1}{2}c^2}\left[1 + \sqrt{2\pi}\left(\frac{b}{a}\right)e^{\frac{1}{2}\left(\frac{b}{a}\right)^2}\Phi\left(\frac{b}{a}\right)\right] \quad , \qquad (34)$$

2. *This expression, equation (33), in Smith 1976) is given with respect to the mathematical convention for a vector direction.*

where a^2, b, [illegible], and d_1 are as previously defined in equation (33) and

$$\Phi\left(\frac{b}{a}\right) = \Phi\ (x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{x} e^{-\frac{1}{2}t^2}\, dt$$

is taken from tables of normal distribution functions or made available through a computer subroutine.

If desired, equation (34) can be integrated numerically over a chosen range of θ to obtain the probability that the vector direction will lie within the chosen range; i.e.,

$$F(\theta) = \int_{\theta_2}^{\theta_1} g(\theta)\, d\theta \quad . \tag{35}$$

One application may be to obtain the probability that the wind will flow from a given quadrant or sector as, for example, onshore.

C.3.4. The Derived Conditional Distribution of Windspeed Given the Wind Direction (Wind Rose)

Continuing with the considerations in section C.3.3. of this chapter, the conditional probability density function (pdf) for windspeed, r, given a specified value for the wind direction, θ, can be expressed as

$$f(r|\theta) = \frac{a^2\, r\, e^{-\frac{1}{2}(a^2 r^2 - br)}}{1 + \sqrt{2\pi}\left(\frac{b}{a}\right) e^{\frac{1}{2}\left(\frac{b}{a}\right)^2} \Phi\left\{\frac{b}{a}\right\}} \quad , \tag{36}$$

where the coefficients, a and b and the function $\Phi\left\{\frac{b}{a}\right\}$ are as previously defined in equation (33) and in equation (34).

From equation (36) the mode (most frequent value) of the conditional windspeed given a specified value of the wind direction is the positive solution of the quadratic equation,

$$a^2 r^2 - br - 1 = 0 \quad , \tag{37}$$

which is

$$(\tilde{r}\,|\theta) = \frac{1}{2a}\left[\left(\frac{b}{a}\right) + \sqrt{4 + \left(\frac{b}{a}\right)^2}\right] \quad . \tag{38}$$

The locus of the conditional modal values of windspeed when plotted in polar form versus the given wind directions forms an ellipse.

The noncentral moment for equation (36) is expressed as

$$\mu'_n = \int_0^\infty r^n \, f(r|\theta) \, dr \quad . \tag{39}$$

Now the first noncentral moment is identical to the first central moment or the expected value, $E(r|\theta)$. The integration of equation (39) for the first moment is sufficiently simple to yield practical computations and can be expressed as

$$E(r|\theta) = \frac{\left(\frac{b}{a}\right) + \left[1 + \left(\frac{b}{a}\right)^2\right] \sqrt{2\pi}\, e^{\frac{1}{2}\left(\frac{b}{a}\right)^2} \Phi\left\{\frac{b}{a}\right\}}{a\left[1 + \left(\frac{b}{a}\right) \sqrt{2\pi}\, e^{\frac{1}{2}\left(\frac{b}{a}\right)^2} \Phi\left\{\frac{b}{a}\right\}\right]} \quad . \tag{40}$$

Hence, equation (40) gives the conditional mean value of the windspeed given a specified value for the wind direction.

The integration of equation (36) for the limits $r = 0$ to $r = r^*$ gives the probability that the conditional windspeed is $\leq r^*$ given a value for the wind direction, θ. This conditional probability distribution (PDF) can be written as

$$\Pr\left\{r \leq r^* \mid \theta = \theta_o\right\} = 1 - \left[\frac{e^{-\frac{1}{2}r_s^2} + \sqrt{2\pi}\left(\frac{b}{a}\right)\left\{1 - \Phi\,(r_s)\right\}}{e^{-\frac{1}{2}\left(\frac{b}{a}\right)^2} + \sqrt{2\pi}\left(\frac{b}{a}\right)\Phi\left\{\frac{b}{a}\right\}}\right], \tag{41}$$

where $r_s = \left[a\, r^* - \left(\frac{b}{a}\right)\right]$.

By definitic , equation (41) is an expression for a "wind rose." Empirical wind rose statistics are often tabulated or graphically illustrated giving the frequency that the windspeed is not exceeded for those windspeed values that lie within assigned class intervals of the wind direction. After evaluation of equation (41) for various values of windspeed, r*, and the given wind directions, θ, interpolations can be performed to obtain various percentile values of the conditional windspeed.

For the special case when $\underline{b}$ in equation (33) equals zero (i.e., for $\bar{x} \equiv \bar{y} = 0$), the conditional modal values of windspeeds [equation (38)], the conditional mean values of windspeeds [equation (40)], and the fixed conditional percentile values of windspeeds [interpolated from evaluations of equation (41)], when plotted in polar form versus the given wind directions, produce a family of ellipses.

For the special case when $\bar{x} = \bar{y} = 0$, equation (36) reduces to the following simple case:

$$\Pr\left\{ r \leq r^* \mid \theta = \theta_0 \right\} = 1 - e^{-\frac{a^2 r^{*2}}{2}} \quad . \tag{42}$$

There is a special significance of equation (42) when related to the bivariate normal probability distribution. If r* and θ are measured from the centroid of the probability ellipse, then the probability that $r \leq r^*$ is the same as the given probability ellipse. Further, solving equation (42) for r*, gives

$$r^* = \frac{1}{a} \sqrt{-2 \ln (1 - P)} \quad . \tag{43}$$

If a probability ellipse P is chosen, equation (42) gives the distance of r along any θ from the centroid of the ellipse to the intercept of the specified probability ellipse. If there is an interest in conditional probability of winds for a given θ relative to the monthly means, equation (43) is applicable. If it is desired to find the magnitude of the wind along any θ relative to the monthly mean to the intercept of a given probability ellipse, equation (43) is applicable.

D. Statistical Parameters With Respect To Any Orthogonal Axes

The five wind statistical parameters presented in table I are given with respect to the standard meteorological coordinate system; i.e., these parameters are for the U and V components. For many aerospace vehicles and range applications, there is a need for wind statistics with respect to orthogonal axes other than west to east and south to north. For example, it may be required to present wind statistics with respect to a flight azimuth of an

aerospace vehicle whose flight azimuth is α degrees from true north measured in a clockwise direction. The following sets of equations are presented to compute the five parameters for the new coordinate axes rotated α degrees clockwise from true north.

a. Rotation of the means through α degrees:

$$\bar{X}_\alpha = \bar{X} \cos (90 - \alpha) + \bar{Y} \sin (90 - \alpha) \tag{44}$$

$$\bar{Y}_\alpha = \bar{Y} \cos (90 - \alpha) - \bar{X} \sin (90 - \alpha) \quad . \tag{45}$$

b. Rotation of the variances through α degrees:

$$\sigma_{x_\alpha}^2 = \sigma_x^2 \cos^2 (90 - \alpha) + \sigma_y^2 \sin^2 (90 - \alpha)$$

$$+ 2\rho\sigma_x\sigma_y \cos (90 - \alpha) \sin (90 - \alpha) \tag{46}$$

$$\sigma_{y_\alpha}^2 = \sigma_y^2 \cos^2 (90 - \alpha) + \sigma_x^2 \sin^2 (90 - \alpha)$$

$$- 2\rho\sigma_x\sigma_y \cos (90 - \alpha) \sin (90 - \alpha) \quad . \tag{47}$$

c. Rotation of the linear correlation coefficient through α degrees:

$$\rho_\alpha = \frac{\text{cov } (X,Y)_\alpha}{\sigma_{x_\alpha} \sigma_{y_\alpha}} \quad , \tag{48}$$

where $\text{cov } (X,Y)_\alpha$ is the rotated covariance,

$$\text{cov } (X,Y)_\alpha = \text{cov } (X,Y) [\cos^2 (90 - \alpha) - \sin^2 (90 - \alpha)]$$

$$+ \cos (90 - \alpha) \sin (90 - \alpha) (\sigma_y^2 - \sigma_x^2)$$

and

$$\text{cov}\ (X,Y) = \rho\sigma_x\sigma_y \quad .$$

By using these rotational equations, the bivariate normal distribution with respect to any desired rotated coordinates can be obtained from sample estimates that have been computed with respect to a specific axis. The marginal distributions after rotation are also normally (univariate) distributed. Using the rotational equations greatly reduces computational efforts for applications requiring statistics with respect to several coordinate axes.

Appendix A presents some illustrative examples for the wind statistics of the specific RRA.

CHAPTER III. STATISTICS OF THERMODYNAMICS QUANTITIES AND MODELS

A. General Considerations

A.1. Objectives

The objective inherent in developing the thermodynamic section of the RRA was to describe the thermodynamic characteristics of the atmosphere using a minimum of data tabulations. A set of parameters was selected which, together, thermodynamically describe the climatological state of the atmosphere. These parameters are the pressure, temperature, density, dewpoint, virtual temperature, and water vapor pressure. Used together, these parameters permit the calculation of a large number of derived quantities. (Symbols used in the calculations in this chapter are summarized in table D.) Some of these quantities, such as the speed of sound, are dealt with in section III.E.

The probability distribution of each of the six thermodynamic RRA parameters is described by its mean value, its standard deviation, and its skewness. Several of these parameters (temperature, pressure, dewpoint and density) have probability distributions that are close to a univariate normal distribution; the others do not. The skewness parameter gives an estimate of the asymmetrical departures of a probability distribution.

Hydrostatically modeled mean values of pressure and density were calculated (table IV), so that users may determine the departure of the actual climatological values of these parameters from hydrostatic conditions. This was done by hydrostatically integrating the pressure from the lowest RRA data level to the termination altitude of the particular RRA.

A.2. Data Quality Control

Data limits derived from the following parameters were used to screen the thermodynamic portion of the RRA data base: temperature, pressure, dewpoint (for the 0- to 30-km portion only), and density (for the 30- to 70-km portion only). These limits were set to plus and minus six standard deviations from the mean values of each of these quantities. These limits were used to screen the thermodynamic portion of the RRA data base, according to the procedures described in section I.C. The data base used to generate the thermodynamic portion of the RRA (tables I, II, and IV) was considered to be free from errors under the following conditions:

a) The skewness values of the pressure and temperature were between -2.5 and 2.5 at all data levels.

b) The skewness values of the density were between -3.5 and 3.5 at data levels between 0 and 30 km.

c) The skewness values of the density were between -3.0 and 3.0 at data levels between 30 and 70 km.

d) The skewness values of the dewpoint were between -2.5 and 2.5 at all data levels with more than 10 data values.

TABLE D. LIST OF SYMBOLS USED IN CHAPTER III

C_s - Speed of sound

C_d - Collision diameter

E - Vapor pressure

g_ϕ - Gravity at latitude ϕ

H - Geopotential height

H_m - Geopotential height at a mandatory radiosonde data level

H_s - Geopotential height at a significant radiosonde data level

K_t - Coefficient of thermal conductivity

L - Mean free path length

M - Mean molecular weight of air at sea level

M3Q - Annual or monthly third moment of quantity Q

n - Refractive modulus

N - Refractive index

NA - Avogadro's constant

N_Q - Number of values of quantity Q

P - Pressure

P_m - Pressure at a mandatory radiosonde data level

P_s - Pressure at a significant radiosonde data level

P_h - Hydrostatically integrated mean monthly or annual pressure

Q - Any tabulated RRA quantity

R* - Universal gas constant

R' - Specific gas constant of dry air

r', r* Parameters used in converting z to h and vice versa

TABLE D. (concluded)

S	- Sutherland's constant, used in the calculation of dynamic viscosity
T	- Temperature
T_d	- Dew point
T_v	- Virtual temperature
T_{vm}	- Virtual temperature at a mandatory radiosonde data level
T_{vs}	Virtual temperature at a significant radiosonde data level
V	- Mean air particle speed
V_c	- Mean collision frequency
w	- Parameter used in the hydrostatic interpolation of pressure and density
Z	- Geometric altitude
λ	- Wavelength
α_Q	- Skewness of quantity Q
β	- Constant used in the equation for viscosity
γ	- Ratio of specific heat at constant pressure to specific heat at constant volume
η	- Kinematic coefficient of viscosity
μ	- Dynamic coefficient of viscosity
ρ	- Density
ρ_h	- Mean monthly or annual density derived from pressure height
σ	- Standard deviation of the quantity Q

A.3. Limitation of Thermodynamic Statistics

The correlation coefficients between the thermodynamic quantities and the moisture-related quantities were not calculated at discrete altitudes, nor were any of the correlations between altitudes. Therefore, valid statistical dispersion models that require the relationship between two or more of these quantities at the same altitude or between altitudes cannot be derived. Approximations for the correlation coefficients between pressure, virtual temperature, and density at discrete altitudes may be obtained from the coefficients of variation as developed by Buell (1970). The coefficient of variation is the standard deviation divided by the mean. The mean values and the standard deviations are taken from table II. A model for the profile of monthly and annual mean pressure, virtual temperature, and density that is in excellent agreement with the respective statistical mean values is given by table IV. This agreement results because the physical relationships, given by the hydrostatic equation and the equation of state, were used to derive table IV. When only the monthly or annual mean values for pressure, virtual temperature, and density are required, it is recommended that table IV be used.

B. Establishing Data Samples at the Required Altitude Levels

This section describes the computational procedures used to establish data samples of the thermodynamic RRA parameters at the RRA data levels. References are cited only when an equation given is one of many available in the literature or when an equation is stated in an unusual form.

B.1. Conversion of Data Recorded in Geopotential Heights to Geometric Altitude

The upper air rocketsonde observations used to obtain the table values above 30 km were recorded in terms of geometric altitude and can be interpolated directly to the altitude intervals shown in the tables. However, the radiosonde observations used to obtain the tabular values below 30 km were recorded in terms of geopotential heights. The change of coordinates from geopotential heights to geometric altitudes (h to z) is accomplished by calculating a table of geopotential heights that correspond exactly to the geometric altitudes at which the atmospheric parameters are tabulated. The radiosonde observations are then interpolated to these geopotential heights. The relationship used to calculate geometric altitude from geopotential height is

$$H = (r'z)/(r^*z) \quad , \tag{49}$$

where

$$r' = gr^*/9.80665$$

and

$$r^* = -2g_\phi/(\partial g_\phi/\partial z_o) \quad .$$

g_ϕ is the sea- ·evel gravity at the latitude ϕ corresponding to the proper location. This value is given by (List, 1968)

$$g_\phi = 9.780356\ (1 + 5.2885 \times 10^{-3} \sin^2\phi - 5.9 \times 10^{-6} \sin^2 (2\phi)). \qquad (50)$$

$\frac{\partial g_\phi}{\partial z_o}$ is the rate of change of gravity at the sea level. This quantity is given by the equation

$$\frac{\partial g_\phi}{\partial z_o} = -3.085462 \times 10^{-6} + 2.27 \times 10^{-9} \cos (2\phi) - 2 \times 10^{-12} \cos (4\phi). \qquad (51)$$

The units used for gravity are meters per square second, while the units for $\frac{\partial g_\phi}{\partial z_o}$ are per square second.

The resulting table of values of H obtained by using even increments of 2 in equation (49) is shown in table IV of the RRA. The values of *H* above 30 km are not used in the interpolation of original data, but are included for the convenience of the user.

B.2. Calculations on the Original Rawinsonde Data Records

It was necessary to interpolate the information from the original rawinsonde data records to the geometric altitudes specified as the RRA data levels. The parameters for which this interpolation was required were the temperature, dewpoint, and pressure. The other parameters were calculated from the interpolated values at each RRA data level. These "derived" parameters were the water vapor pressure, density, and virtual temperature.

B.2.1. Calculation of the Geopotential Height at Significant Levels

Two somewhat different interpolation procedures were used to obtain data from radiosonde and rocketsonde observations at the levels shown in the tables. The procedure used to interpolate radiosonde observations began with the calculation of virtual temperature at each data level in a sounding. The virtual temperature was computed by

$$T_v = T/(1. - 0.379\ (e/p)) \quad , \qquad (52)$$

where T_v and T are in degrees Kelvin and e and p are in millibars.

The radiosonde soundings contain a mix of data taken at "mandatory" and "significant" levels. Pressure, temperature, and dewpoint information was given in these soundings at both types of levels. However, geopotential height information was only given at the mandatory levels. The heights at the significant levels were "filled in" (calculated) hydrostatically using pressure and temperature data from these levels. This procedure permitted the use of most of the significant level data in the calculation of the RRA tables. The equation used for this process was

$$H_s = H_m + 29.2712617 \quad \frac{(T_{vs} - T_{vm})}{2} \quad \ln(P_s/P_m) \quad , \tag{53}$$

where the subscripts s and m denote quantities at significant and mandatory levels. This equation was not used if the difference between two adjacent mandatory levels was greater than 200 mb. All soundings with such data gaps were rejected for use in compiling the RRA.

B.2.2. Temperature

Radiosonde temperatures were interpolated logarithmically with respect to pressure using the equation

$$T = T_U + (T_L - T_U) \frac{\ln p - \ln p_L}{\ln p_U - \ln p_L} \quad , \tag{54}$$

where the subscripts U and L indicate values at the nearest data levels in the actual sounding above and below the interpolated level.

B.2.3. Pressure

The pressure values in each radiosonde sounding were interpolated to the RRA data levels using the equation

$$p = p_L \exp\left(\frac{H_L - H_U}{29.2712617\ (0.5)\ (T_{v_U} + T_{v_L})}\right) \tag{55}$$

where the subscript L indicates virtual temperature, geopotential height, and pressure values at the data level below and closest to the level at which data were required.

B.2.4. Dewpoint Temperature

Dewpoint values were interpolated logarithmically with respect to pressure using the equation

$$T_d = T_{dU} + (T_{dL} - T_{dU}) \left(\frac{\ln p - \ln p_L}{\ln p_U - \ln p_L}\right) \quad . \tag{56}$$

The subscript U and L indicate data at the nearest upper and lower data levels in a sounding

B.2.5. Derived Water Vapor Pressure

The water vapor pressure was calculated from the interpolated dewpoint values at the RRA data levels using Teten's approximation:

$$e = 6.11 \text{ mb} \times 10^{7.5(T_d - 273.15)/(T_d - 35.86)} \quad . \qquad (57)$$

B.2.6. Derived Density

The density values derived from radiosonde observations were calculated at the RRA data levels using the equation

$$\rho = 348.36787\ p/T_v \quad . \qquad (58)$$

B.2.7. Derived Virtual Temperature

The virtual temperature values were calculated at the RRA data levels for each sounding using the equation

$$T_v = T/(1 - 0.379(e/p)) \quad , \qquad (59)$$

where T_v and T are in degrees Kelvin, and p and e are the pressure and vapor pressure, respectively, in millibars.

B.3. Calculations on the Original Rocketsonde Data Records

The rocketsonde data records used to calculate the RRA table values above 30 km were given in terms of geometric altitude. For this reason, slightly different calculations were required to convert the recorded data values to values at the RRA data levels. The pressure, temperature, and density were all interpolated to the RRA data levels; moisture-related parameters (virtual temperature, water vapor pressure, and dewpoint) were not calculated, since atmospheric moisture at altitudes above 30 km was considered to be negligible.

No interpolation was done across gaps in the pressure or temperature data within a sounding larger than 7,000 m. Data values at the RRA levels within such a gap were set to missing.

B.3.1. Temperature

Rocketsonde temperatures were interpolated linearly with respect to geometric altitude using the equation

$$T = T_U + (T_L - T_U) \frac{Z - Z_L}{Z_U - Z_L} \quad , \tag{60}$$

where the subscripts U and L indicate values at the nearest data level in the actual sounding above and below the interpolated level.

B.3.2. Pressure

The pressure values in each rocketsonde sounding were interpolated to the RRA data levels using the equation

$$P = P_L \exp\left(-\frac{g_\phi}{R^*} \frac{M(Z - Z_L)}{\overline{T}_V} \cdot W^2\right) \quad , \tag{61}$$

where $\overline{T}_V = \frac{T_{VU} + T_{VL}}{2}$ and $W = \frac{r^*}{\left(r^* + Z + \frac{Z - Z_L}{2}\right)}$.

B.3.3. Density

Rocketsonde density values were interpolated using the equation

$$\rho = \rho_L \exp\left(-\frac{g_\phi M}{R^*} \frac{(Z - Z_L)}{\overline{T}_V} \cdot W^2\right) \quad , \tag{62}$$

where W is specified in section III.B.3.2.

C. Computation of Statistical Parameters for Tables II and III

A three-step procedure was used for computing the monthly and annual means, standard deviations, and skewness values from the data values at the RRA data levels. Initially, certain statistical sums were calculated and stored as the soundings in the data base were processed. These sums were then used to calculate the monthly statistics given in the RRA tables. The annual statistics were then calculated from these stored sums and the monthly statistics.

C.1. Stored Statistical Sums

The sums calculated were

$$\sum Q,\ \sum Q^2,\ \text{and}\ \sum Q^3 \quad ,$$

where Q is any one of the quantities given in the thermodynamic part of the RRA.

C.2. Calculation of the Monthly Statistics

C.2.1. Monthly Means

The mean monthly values of the thermodynamic RRA quantities were calculated using the equation

$$\bar{Q} = \sum Q/N_Q \quad ,$$

where N_Q is the number of observed values of the quantity Q for a given month.

C.2.2. Monthly Standard Deviations

The monthly standard deviations of the thermodynamic RRA quantities were calculated using the equation

$$\sigma_Q = \sqrt{\frac{(N_Q \Sigma' Q^2) - (\Sigma Q)^2}{N_Q \cdot (N_Q - 1)}} \quad . \qquad (63)$$

C.2.3. Monthly Skewness Values

The monthly skewness values of the windspeed and of the thermodynamic RRA quantities were calculated using the equation

$$\alpha_Q = \frac{M3_Q}{\sigma_Q^3} \quad ,$$

where $M3_Q$ is the third moment of the quantity Q, σ_Q is its standard deviation, and

$$M_{3Q} = \left[\frac{\Sigma_Q^3}{N_Q} - \frac{3\Sigma_Q \Sigma_Q^2}{N_Q^2} - \frac{2\Sigma_Q^3}{N_Q^3}\right] \cdot \frac{N_Q^2}{(N_Q - 1)(N_Q - 2)} \quad . \qquad (64)$$

C.3. Calculation of the Annual Statistics

Equations (63) and (64), used to calculate the monthly values of the standard deviations and skewness values, involve taking the differences between two pairs of large sums containing Q^2 and Q^3, where Q is any thermodynamic RRA quantity. Using these equations to compute the annual statistics would have resulted in a substantial loss of precision, as these sums become larger by several orders of magnitude in such a case. This problem was avoided by calculating the annual means, standard deviations, and skewness values from the monthly statistics.

C.3.1 Annual Mean Values

The annual mean values of the thermodynamic RRA quantities were calculated using the equation

$$Q_{ANN} = Q_A / N_Q \quad ,$$

where Q_A is the total of all observed values of Q and N_Q is the total number of observations of Q.

C.3.2. Annual Standard Deviations

The annual standard deviations of the thermodynamic RRA quantities were calculated using the equation

$$\sigma Q_{ANN} = \sqrt{\frac{1}{N_Q} \sum_{i=1}^{12} (N_{Qi} \, \sigma_{Qi}^2) + \frac{1}{N_Q} \sum_{i=1}^{12} (N_{Qi} \, \bar{Q}_i^2) - Q_{ANN}^2} \quad , \qquad (65)$$

where N_{Qi} = the number of data values for Q in month i (i = 1 to 12), Q_i = the monthly mean of Q, and σ_{Qi} = the standard deviation of quantity Q in month i.

C.3.3. Annual Skewness Values

The annual skewness values of the thermodynamic RRA quantities were calculated using the equation

$$M3Q_{ANN} = \frac{1}{N} \sum_{i=1}^{12} (N_{Qi} M_{3Qi}) + \frac{3}{NQ_{ANN}} \sum_{i=1}^{12} (N_{Qi} \bar{Q}_i \sigma_{Qi}^2)$$

$$+ \frac{1}{NQ_{ANN}} \sum_{i=1}^{12} (N_{Qi} Q_i^3) - \frac{3\bar{Q}_{ANN}}{NQ_{ANN}} \sum_{i=1}^{12} (N_{Qi} Q_i^2)$$

$$- \frac{3\bar{Q}_{ANN}}{NQ_{ANN}} \sum_{i=1}^{12} (N_{Qi} \sigma_{Qi}^2) + 2\bar{Q}_{ANN}^3 \quad , \tag{66}$$

where M_{3Qi} = the third moment about the mean of quantity Q in month i and $M3Q_{ANN}$ = the annual third moment about the mean of the quantity Q.

D. Derived Monthly Mean and Annual Mean Model Atmospheres

A set of modeled monthly mean and annual mean hydrostatic values of pressure and density was calculated from the lowest RRA data level (0 km, mean sea level) upwards to 30 km, and from 30 km upwards to 70 km. The integration from 0 to 30 km was computed independently of the integration from 30 to 70 km because of the difference in data sources. The two different values for 30 km are provided for comparison. When 30-km data are required, the values given in the 0- to 30-km table should be used. These hydrostatically modeled mean values, which are given in table IV, are useful as a check on the validity of the pressure and density values given in table II. In most cases, the values in tables II and IV for any given data level are within 1 percent of each other. The hydrostatic pressure values in table IV were calculated using the equation

$$p_1 = p_0 \exp\left(- \frac{0.034162 \, (H_1 - H_0)}{0.5 \, (T_{v_1} + T_{v_0})} \right) \quad . \tag{67}$$

where $H_1 - H_0$ is in meters and a "0" subscript refers to values at the RRA data level immediately below the level being checked. p_0 at the lowest data level is set equal to the RRA mean pressure; p_1, calculated for the next highest data level, is taken as p_0 for the level above that. This process is repeated for all the other RRA data levels. The hydrostatic density corresponding to the hydrostatic pressures is calculated from these pressures and the RRA virtual temperature values using the formula

$$\rho_H = 348.36786 \, P_H / T_v \quad , \tag{68}$$

where ρ_H and P_H are the hydrostatic density and pressure shown in table IV of the RRA.

E. Thermodynamic Quantities Derivable from the Basic Tables

Several other quantities can be calculated from the statistics listed in tables I and II. Primary physical constants used in these calculations are listed in table E. The equations given in this section can be used to calculate the approximate mean values of these quantities at each RRA data level. It is not possible to infer or derive any information concerning the standard deviation or skewness values of these quantities from the data in tables II and III of the RRA.

E.1. Mean Air Particle Speed

The mean air particle speed, V, is the arithmetic average of the speeds of all air particles in the volume element being considered. For a valid average to occur, there must be a sufficient number of particles involved to represent mean conditions. The equation for V for dry air is

$$V = \sqrt{\frac{8}{\pi} \cdot \frac{R^*T}{M}} \quad . \tag{69}$$

A computational form for dry air, using tabulated values, is

$$V = \sqrt{7.3094 \times 10^2 \times T} \text{ (meters per second)} \quad , \tag{70}$$

where T is the temperature in degrees Kelvin from table II. Equation (69), when corrected for moist air, becomes

$$V = \sqrt{\frac{8}{\pi} \cdot R' T_v} \quad . \tag{71}$$

The computational form for moist air is

$$V = \sqrt{7.3094 \cdot 10^2 \cdot T_v} \text{ (meters per second)} \quad , \tag{72}$$

where T_v is the virtual temperature in degrees Kelvin from table III.

TABLE E. LIST OF PRIMARY PHYSICAL CONSTANTS

P_o = standard atmospheric pressure at sea level
= 1.013250×10^5 Newton/m^2 = 2116.22 lb/ft^2

ρ_o = standard atmospheric density at sea level
= 1.2250 kg/m^3 = 0.076474 lb/ft^3

T_o = standard temperature at sea level = 288.15 K = 15.0°C = 59.0°F

g_o = standard gravity at sea level at latitude 45°32'33"
= 9.80665 m/s^2

s = Sutherland's constant used in calculation of dynamic viscosity
= 110.4 K

T_I = ice-point temperature at P_o = 273.15 K

β = constant used in calculation of dynamic viscosity
= 1.458×10^{-6} kg/s m $K^{\frac{1}{2}}$
= 7.3025×10^{-7} lb/s ft $R^{\frac{1}{2}}$

γ = ratio of specific heat of air at constant pressure to specific heat of air at constant volume
= 1.4

C_D = mean effective collision diameter of air molecules
= 3.65×10^{-10} m = 1.1975×10^{-9} ft

N_a = Avogadro's constant
= 6.022169×10^{26}/kg mol = 2.73179×10^{26}/lb mol

R* = gas constant = 8.31432 J/mol K

R' = gas constant for dry air = 2.8704×10^2 J/kg K

M = molecular weight of dry air = 28.966 g/mol

E.2. Mean Free Path

The mean free path, L, is the mean value of the distance traveled by each neutral air particle in a selected air parcel, between successive collisions with other particles in that parcel. A meaningful average requires that the selected parcel be large enough to contain a substantial number of particles. The equation for L is given by

$$L = \left(\frac{\sqrt{2}}{2\pi}\right)\left(\frac{R^*T}{N_a C_d^2 P}\right) \quad , \tag{73}$$

where C_d is the effective collision diameter of the mean air molecules. The 1976 standard atmosphere value of 3.65×10^{-10} is valid for the range of altitudes in the RRA.

A computational form for moist air, using tabulated values, is

$$L = 2.335 \times 10^{-7} \frac{T}{P} \text{ (meters)} \quad , \tag{74}$$

where T is the temperature in degrees Kelvin from table II and P is the pressure in millibars from table II.

A form of (73) to correct L for moist air is

$$L = \left(\frac{\sqrt{2}}{2\pi}\right)\frac{R'MT_v}{N_a C_d^2} \quad . \tag{75}$$

The computational form for moist air is

$$L = 2.3325 \times 10^{-7} \frac{T_v}{P} \text{ (meters)} \quad , \tag{76}$$

where T_v is the virtual temperature in degrees Kelvin from table III and P is the pressure in millibars from table II.

E.3. Mean Collision Frequency

The mean collision frequency, V_c, is considered to be the average speed of air particles contained in an air parcel, divided by the mean free path of the particles inside that parcel. Computationally this is equivalent to

$$V_c = \frac{V}{L} \ (\text{sec}^{-1}) \quad . \tag{77}$$

To determine V_c for dry air, use V and L from equations (70) and (74). To determine V_c for moist air, use V and L from equations (72) and (76).

E.4. Speed of Sound

The expression for the speed of sound, C_s, in meters per second in dry air, is

$$C_s = \sqrt{\frac{\gamma R^* T}{M}} \quad . \tag{78}$$

To compute C_s for dry air from tabulated values, use

$$C_s = \sqrt{4.0185 \times 10^2 \times T} \quad \text{(meters per second)} \quad , \tag{79}$$

where T is the temperature in degrees Kelvin from table II. One form for the speed of sound in moist air is

$$C_s \approx \sqrt{\gamma R' T_v} \quad . \tag{80}$$

where T_v is the virtual temperature from table III. A computational form for moist air is

$$C_s \approx \sqrt{4.0185 \times 10^2 \ T_v} \quad \text{(meters per second)} \quad . \tag{81}$$

E.5. Dynamic Coefficient of Viscosity

The coefficient of dynamic viscosity, μ, is defined as a coefficient of internal friction developed where gas regions move adjacent to each other at different velocities. The following expression is taken from the U.S. Standard Atmosphere (1976):

$$\mu = \frac{\beta \cdot T^{3/2}}{T + S} \quad . \tag{82}$$

The computational form is

$$\mu = \frac{(1.458 \cdot 10^{-6})\ T^{3/2}}{T + 110.4} \quad \text{(kilograms per second per meter)}, \tag{83}$$

where T is the temperature in degrees Kelvin from table II.

E.6. Kinematic Coefficient of Viscosity

The kinematic coefficient of viscosity, designated as η, is defined to be the ratio of the dynamic coefficient of viscosity of a gas to its density, or

$$\eta = \mu/\rho \quad . \tag{84}$$

The computational form is

$$\eta = 1.0 \times 10^{3}\ \mu/\rho \quad \text{(square meters per second)}, \tag{85}$$

where μ is the dynamic coefficient of viscosity from equation (83) and ρ is the density in grams per cubic meter from table II.

E.7. Coefficient of Thermal Conductivity

The empirical expression used for the coefficient of thermal conductivity, designated as K_t, is given in the 1976 Standard Atmosphere as

$$K_t = \frac{2.65019 \times 10^{-3} \cdot T^{3/2}}{T + 245.4 \times 10^{-(12/T)}} \quad \text{(watts per meter per degree Kelvin)}, \tag{86}$$

where T is in degrees Kelvin.

E.8. Refractive Modulus and Refractive Index

The refractive modulus or refractivity (Selby and McClatchey, 1975; Smith and Weintraub, 1953) is defined as N, where

$$N = (n - 1) \cdot 10^{6} \tag{87}$$

and n is the refractive index.

For microwave frequencies below approximately 30 GHz (equivalent to wavelengths above 1 cm), N, the refractive modulus, is given by the empirical equation

$$N = 77.6 \frac{P}{T_d} + 3.73 \times 10^5 \frac{e}{T^2} \text{ (dimensionless)}, \tag{88}$$

where E and P are in millibars and T and T_d are in degrees Kelvin.

The following expression is valid for the visible and infrared wavelengths shorter than approximately 30 μm (0.03 mm).

$$N = 77.6 \frac{P}{T} + 0.584 \frac{P}{T\lambda} \text{ (dimensionless)}, \tag{89}$$

where λ is the wavelength in microns and T is in degrees Kelvin.

The expression for N for the wavelength from 0.03 mm to 1 cm is an extremely complex function of wavelength.

CHAPTER IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This document satisfies the technical objectives established for the RRAC by the RCC MG. Upper air statistics and models for wind and thermodynamic quantities for the specific site have been derived in a consistent and uniform manner, which will be used in publications for all other assigned site locations. These RRAs represent an improvement over the previously published RRAs because of the availability of more extensive upper air data bases and the adaptation of more advanced statistical techniques. A statistical measure of central tendency (mean values) and a measure of dispersion (standard deviation with respect to the mean values) for monthly and annual reference periods have been tabulated for all variables in a consistent manner from data bases that have been edited and quality-controlled in the same manner. Further, a statistical measure for symmetry (skewness coefficient that involves the third statistical moment) has been tabulated for all variables except the U and V wind components. Even with these improvements, the user of these RRAs must recognize certain limitations of the statistical tabulations:

1) The wind profile structure with respect to altitude cannot be modeled from the RRA statistics because the interlevel and crosslevel correlations were not computed.

2) The profile structure with respect to altitude for any of the thermodynamic variables or any quantities derivable from these variables cannot be modeled because the prerequisite correlations were not computed. However, the profiles of monthly and annual means for pressure, virtual temperature, and density are in agreement (table IV) with the hydrostatic equation and the equation of state.

The preceding limitations are cited to prevent a misuse of the RRAs. More extensive statistical tabulations were beyond the scope of this committee's task. As greater insight is gained through usage of these RRAs, many adaptations of the statistical tabulations for specific engineering and scientific applications are envisioned.

Recommendations

It is recommended than the wind and thermodynamic statistical tabulations and attendant models contained in the RRAs be used as a standard reference source, as may be appropriate, by the ranges and range users. It is further recommended that the respective Range Staff Meteorologist or responsible agency staff member be consulted for the applicability of the RRAs for specific engineering applications.

REFERENCES

Buell, Eugene C.: "Statistical Relations in a Perfect Gas." Journal of Applied Meteorology, 9, 1970, pp. 729-731.

List, R. J., Editor: Acceleration of Gravity, Smithsonian Meteorological Tables, Sixth Ed. Smithsonian Institution, Washington, D.C., 1968, pp. 488.

Selby, J.E.A.; and McClatchey, R.A.: AFCRL-TR-75-0255, Atmospheric Transmittance from 0.25 to 28.5 μm - Computer Code Lowtran 3, Air Force Cambridge Research Laboratories. Available through the National Technical Information Service, Washington, D.C., 1975.

Smith, E.K.; and Weintraub, S.: "The Constants in the Equation for Atmospheric Refractive Index at Radio Frequencies," Proceedings of the Institute of Radio Engineers, 41, 8, August 1953, pp. 1035-1037.

Smith, O.E.: NASA TM X-73319, Vector Wind and Vector Wind Shear Models at 0-27 km Altitude for Cape Kennedy, Florida, and Vandenberg AFB, California. Prepared under sponsorship of the National Aeronautics and Space Administration. Available through the National Technical Information Service, Washington, D.C., July 1976.

U.S. Standard Atmosphere, 1976. Prepared under the sponsorship of the National Aeronautics and Space Administration, United States Air Force, and United States Weather Bureau. Available through U.S. Government Printing Office, Washington, D.C., October 1976.

PREVIOUS RANGE REFERENCE ATMOSPHERES PUBLISHED BY IRIG

Atlantic Missile Range Reference Atmosphere for Cape Kennedy, Florida (Part I), Document 104-63, April 16, 1963. (AD451780)

White Sands Missile Range Reference Atmosphere (Part I), Document 104-63, June 28, 1964. (AD451781)

Fort Churchill Missile Range Reference Atmosphere for Fort Churchill, Manitoba, Canada (Part I), Document 104-63, August 7, 1964. (AD634727)

Pacific Missile Range Reference Atmosphere for Eniwetok, Marshall Islands (Part I), Document 104-63, September 1, 1964. (AD479264)

Fort Greely Missile Range Reference Atmosphere (Part I), Document 104-63, October 6, 1964. (AD634726)

Eglin Gulf Test Range Atmosphere for Eglin AFB, Florida (Part I), Document 104-63, January 25, 1965. (AD472601)

Pacific Missile Range Atmosphere for Point Arguello, California (Part I), Document 104-63, April 1965. (AD472602)

Wallops Island Test Range Reference Atmosphere (Part I), Document 104-63, July 10, 1965. (AD474071)

Eastern Test Range Reference Atmosphere for Ascension Island, South Atlantic (Part I), Document 104-63, July 1966. (AD645591)

Johnston Island Test Site Reference Atmosphere (Part I), Document 104-63, January 1970. (AD782652)

Lihue, Kauai, Hawaii Reference Atmosphere (Part I), Document 104-63, January 1970. (AD782653)

Cape Kennedy, Florida Reference Atmosphere (Part II), Document 104-63, September 1971. (AD751581)

White Sands Missile Range Reference Atmosphere (Part II), Document 104-63, September 1971. (AD782654)

Wallops Island Test Range Reference Atmosphere (Part II), Document 104-63, September 1971. (ADA040280)

Fort Greely Missile Range Reference Atmosphere (Part II), Document 104-63, September 1971. (ADA040281)

Edwards Air Force Base Reference Atmosphere (Part I), Document 104-63, September 1972. (AD782651)

Kwajalein Missile Range Reference Atmosphere for Kwajalein, Marshall Islands (Part I), Document 104-63, October 1974. (ADA002664)

Pacific Missile Test Center Reference Atmosphere for Point Arguello, California (Part II), Document 104-63, November 1975. (ADA040279)

REVISED RANGE REFERENCE ATMOSPHERES PUBLISHED BY THE RCC

Kwajalein Missile Range, Kwajalein, Marshall Islands, Range Reference Atmosphere, 0-70 Km Altitude, Document 360-82, December 1982. (AD123424)

Cape Canaveral, Florida, Range Reference Atmosphere, 0-70 Km Altitude, Document 361-83, February 1983. (ADA125553)

Vandenberg Air Force Base, California, Range Reference Atmosphere, 0-70 Km Altitude, Document 362-83, April 1983.

Dugway, Utah, Range Reference Atmosphere, 0-30 Km Altitude, Document 363-83, June 1983.

Wallops Island, Virginia, Range Reference Atmosphere, 0-70 Km Altitude, Document 364-83, July 1983.

White Sands Missile Range, New Mexico, Range Reference Atmosphere, 0-70 Km Altitude, Document 365-83, August 1983.

Edwards AFB, California, Range Reference Atmosphere, 0-70 Km Altitude, Document 366-83, August 1983.

Eglin AFB, Florida, Range Reference Atmosphere, 0-30 Km Altitude, Document 367-83, September 1983.

Taquac, Guam Island, Range Reference Atmosphere, 0-30 Km Altitude, Document 368-83, September 1983.

In addition to the documents above and the present RRA for Point Mugu, California, the revised series will include RRAs for the following locations:

Barking Sands, Hawaii
Ascension Island, South Atlantic

CONVERSION UNITS

Physical Constants and Conversion Factors

Numerical values in this document are given in the International System of Units (SI, Système International d'Unités). The values in parentheses are equivalent U.S. Customary Units, which are English units adapted for use by the United States of America. The SI and U.S. Customary Units provided in table F are those normally used for measuring and reporting atmospheric data.

By definition, the following fundamental conversion factors are exact:

Type	U.S. Customary Units	Metric
Length	1 U.S. yard (yd)	0.9144 meter (m)
Mass	1 avoirdupois pound (lb)	453.59237 gram (g)
Time	1 second (s)	1 second (s)
Temperature	1 degree Rankine (°R)	9/5 degree Kelvin (K)

To aid in the conversion of units, conversion factors based on the above fundamental conversion factors are given in table F.

TABLE F. FACTORS FOR CONVERSION UNITS

Type of Data	METRIC		U.S. CUSTOMARY		CONVERSION		
	Unit	Abbreviation	Unit	Abbreviation	Multiply	By	To Get
TEMPERATURE							
Ambient Temperature	degree Celsius	°C	degree Fahrenheit	°F	°F - 32	0.5556	°C
	degree Kelvin	K	degree Rankine	°R	°C	1.8*	°F - 32
					°R	1.00*	°F + 459.67
					°R - 459.67	1.00*	°F
					K	1.00*	°C + 273.15
					K - 273.15	1.00*	°C
Temperature Change	degree Celsius	°C	degree Fahrenheit	°F	°C or K	1.8*	temp. change °F or °R
	degree Kelvin	K	degree Rankine	°R	°F or °R	0.5556	temp. change °C or K
DENSITY							
Water Vapor Vapor Concentration (Absolute Humidity) and Ambient Density	gram per cubic meter	$g\ m^{-3}$	grain per cubic foot	$gr\ ft^{-3}$	$g\ m^{-3}$	0.43700	$gr\ ft^{-3}$
					$gr\ ft^{-3}$	2.2883	$g\ m^{-3}$
	gram per cubic centimeter	$g\ cm^{-3}$			$g\ m^{-3}$	10^{-6}*	$g\ cm^{-3}$
					$g\ cm^{-3}$	4.370×10^{5}	$gr\ ft^{-3}$
					$gr\ ft^{-3}$	2.288×10^{-6}	$g\ cm^{-3}$
WIND							
Windspeed	meter per second	$m\ s^{-1}$	mile per hour	mph	$m\ s^{-1}$	2.2369	mph
			knots	knots	mph	0.44704*	$m\ s^{-1}$
			feet per second	$ft\ s^{-1}$	$m\ s^{-1}$	1.9438	knots
					knots	0.51444	$m\ s^{-1}$
					mph	0.868976	knots
					knots	1.15078	mph
					$m\ s^{-1}$	3.2808	$ft\ s^{-1}$
					$ft\ s^{-1}$	0.3048*	$m\ s^{-1}$
DISTANCE							
Length	meter	m	feet	ft	m	3.2808	ft
	micron	μ	inch	in.	ft	0.3048*	m
	Angstrom unit	Å			in.	$2.54 \times 10^{+4}$*	μ
					in.	$2.54 \times 10^{+8}$*	Å
					m	10^{+6}*	μ
					m	10^{+10}*	Å

* Defined exact conversion factor

TABLE F. (continued)

Type of Data	METRIC		U. S. CUSTOMARY		CONVERSION		
	Unit	Abbreviation	Unit	Abbreviation	Multiply	By	To Get
DISTANCE (Concluded)					μ	10^{-6}*	m
					μ	3.937×10^{-5}	in.
					Å	10^{-10}*	m
					Å	3.937×10^{-9}	in.
MASS							
Weight	gram	g	grain	gr	lb	0.45359237*	kg
	kilogram	kg	pound	lb	lb	453.59237*	g
					kg	2.20462	lb
					g	15.4324	gr
					gr	0.06480	g
PRESSURE							
Atmospheric	newton per square meter	newton m^{-2}	pound force per square inch	lb $in.^{-2}$	mb	10^{-3}*	bar
					bar	10^{3}*	mb
	millimeter of Mercury	mmHg	inch of Mercury	in.Hg	newton m^{-2}	10^{-2}*	mb
					newton m^{-2}	1.4504×10^{-4}	lb $in.^{-2}$
					lb $in.^{-2}$	6.8948×10^{3}	newton m^{-2}
	bar	bar			mb	1.4504×10^{-2}	lb $in.^{-2}$
	millibar	mb			lb $in.^{-2}$	68.948	mb
	dyne per square centimeter (microbar)	dyne cm^{-2}			mb	10^{3}*	dyne cm^{-2}
					dyne cm^{-2}	10^{-3}*	mb
	kilogram force per square meter	kg m^{-2}			lb $in.^{-2}$	6.8948×10^{4}	dyne cm^{-2}
					dyne cm^{-2}	1.4504×10^{-5}	lb $in.^{-2}$
					mb	10.1972	kg m^{-2}
					kg m^{-2}	0.0980665	mb
					lb $in.^{-2}$	703.0696	kg m^{-2}
					kg m^{-2}	0.0014223	lb $in.^{-2}$
					mb	2.9530×10^{-2}	in.Hg (32°F)
					mb	0.75006	mmHg (0°C)
					in.Hg (32°F)	25.40*	mmHg (0°C)
					mmHg (0°C)	1.33322	mb
					in.Hg (32°F)	33.8639	mb
	pascal	Pa			Pa	1.00*	newton m^{-2}

* Defined exact conversion factor

TABLE I-1. WIND STATISTICAL PARAMETERS

JANUARY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	-1.50	3.57	.4359	-1.96	3.44	4.41	3.35	1.43	580.
1.000	-.89	5.42	.1520	-1.24	3.71	5.50	3.89	1.13	572.
2.000	2.53	5.98	-.0593	-1.63	5.22	7.25	4.41	.93	571.
3.000	5.63	7.50	.0247	-2.96	7.55	10.65	6.34	.95	571.
4.000	7.73	8.88	.1287	-3.41	9.07	13.35	7.35	.62	570.
5.000	9.64	10.31	.1950	-3.50	10.57	15.80	8.57	.55	570.
6.000	11.64	11.73	.2297	-3.56	11.89	18.21	9.75	.48	569.
7.000	13.46	13.33	.2446	-3.77	13.16	20.53	11.15	.60	570.
8.000	15.34	15.23	.2477	-4.03	14.63	23.22	12.55	.68	571.
9.000	17.29	16.81	.2192	-4.57	16.11	26.00	13.62	.65	570.
10.000	19.39	18.00	.2185	-4.62	16.77	28 13	14.51	.62	570.
11.000	21.75	18.05	.2263	-4.68	16.73	29.52	15.13	.80	567.
12.000	23.36	16.67	.2079	-4.57	15.86	29 81	14.38	.71	567.
13.000	22.95	14.08	.2703	-4.12	13.68	28.16	11.66	.48	563.
14.000	21.29	12.33	.3126	-3.37	11.73	25 53	10.11	.43	558.
15.000	16.38	10.43	.3142	-2.99	9.87	22.35	8.70	.43	553.
16.000	10.06	8.88	.3616	-2.90	8.21	18 90	7.30	.47	543.
17.000	12.77	7.67	.3903	-2.52	6.33	15.19	6.13	.74	503.
18.000	9.24	6.73	.3783	-2.62	5.10	11 67	5.22	1.00	491.
19.000	6.14	6.17	.3522	-2.62	4.45	9 00	4.63	1.06	484.
20.000	3.79	6.10	.3624	-2.46	3.66	7 30	4.36	1.42	474.
21.000	2.04	6.38	.3362	-2.36	3.46	6.70	4.17	1.49	461.
22.000	.35	6.83	.2987	-2.46	3.51	6.97	4.05	1.55	446.
23.000	-.41	7.33	.3713	-2.35	3.31	7.32	4.09	1 68	435.
24.000	-1.02	8.49	.3534	-2.29	3.72	8.39	4.66	1.55	420.
25.000	-1.27	9.54	.3644	-2.35	4.01	9.40	5.08	1.20	394.
26.000	-.79	10.76	.4697	-2.12	4.24	10.18	5.92	1.21	378.
27.000	-.08	11.97	.4887	-2.12	4.84	11.33	6.52	1.23	338.
28.000	.82	13.06	.4933	-1.96	5.38	12.39	7.07	.75	329.
29.000	2.20	14.29	.4877	-2.24	5.62	13.53	7.85	.68	244.
30.000	3.73	15.57	.4946	-2.43	6.16	14.85	8.87	.72	236.
32.000	7.39	18.73	.5144	-.16	7.47	18.50	10.82	.81	167.
34.000	10.77	21.16	.5814	-.31	8.76	21.73	12.89	.62	167.
36.000	13.29	23.09	.6028	-.81	9.21	23.66	15.26	.66	167.
38.000	15.92	24.70	.5108	-1.52	9.92	25.49	17.67	.61	168.
40.000	18.56	24.63	.4082	-1.57	11.25	27.27	18.29	.62	168.
42.000	22.20	25.32	.3070	.35	13.28	30.42	19.56	.56	168.
44.000	28.77	26.53	.3303	2.75	15.31	36.32	21.25	.35	168.
46.000	36.23	30.13	.4236	6.74	18.45	44.96	24.10	.43	167.
48.000	42.91	31.79	.4328	8.72	19.03	51.47	25.23	.26	167.
50.000	46.30	31.52	.4139	10.50	18.99	54.03	26.16	.21	166.
52.000	48.14	30.08	.4032	10.53	17.53	54.89	24.99	-.03	166.
54.000	50.10	29.81	.4018	10.30	17.69	56.69	24.50	-.08	162.
56.000	51.89	29.84	.3181	9.20	16.87	57.86	24.50	-.33	158.
58.000	55.21	29.70	.2318	10.01	17.55	60.19	26.67	-.29	136.
60.000	59.92	32.44	.4657	8.38	20.56	64.78	30.57	-.20	99.
62.000	69.74	30.52	.4814	11.83	18.57	73.58	29.33	-.36	64.
64.000	77.55	32.97	.3760	9.41	18.33	80.95	31.06	-.30	57.
66.000	84.97	31.44	.3150	3.56	16.83	87.21	29.85	-.32	56.
68.000	84.36	28.90	.3580	-2.91	15.75	86.29	27.51	-.30	55.
70.000	78.61	30.23	.2030	-5.42	17.28	81.21	28.53	-.28	53.

TABLE I-2. WIND STATISTICAL PARAMETERS

FEBRUARY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	-.76	3.38	.2297	-1.08	3.07	3.75	2.91	2.13	525.
1.000	-.96	5.22	.1769	-.88	3.99	5.29	4.11	1.36	523.
2.000	2.15	5.68	-.0857	-1.41	5.88	7.28	4.52	.97	523.
3.000	5.42	6.99	-.0078	-2.27	8.12	10.51	6.24	.59	522.
4.000	7.87	8.24	.0356	-2.49	9.49	13.05	7.45	.49	522.
5.000	10.13	9.40	.0868	-2.65	11.00	15.65	8.59	.53	523.
6.000	12.09	10.49	.1496	-2.77	12.22	18.01	9.40	.52	523.
7.000	13.94	11.66	.1420	-2.89	13.77	20.45	10.46	.53	523.
8.000	16.33	13.39	.1769	-2.88	15.12	23.29	11.85	.66	523.
9.000	18.97	15.72	.2338	-3.11	16.73	26.56	13.80	.72	521.
10.000	21.72	16.96	.2563	-3.35	17.2[illegible]	29.02	15.06	.72	520.
11.000	24.[illegible]3	16.89	.2780	-3.31	16.58	30.43	15.21	.73	514.
12.000	26.17	15.80	.2644	-[illegible].60	15.37	31.13	14.42	.72	512.
13.000	25.39	13.46	.2609	-1.96	13.71	29.34	12.50	.63	510.
14.000	23.62	11.84	.2823	-1.71	11.79	26.88	10.81	.50	510.
15.000	20.73	10.21	.3065	-1.35	9.62	23.25	9.36	.61	505.
16.000	17.57	8.47	.2931	-1.13	7.73	19.61	7.54	.74	504.
17.000	13.78	6.94	.3406	-1.24	6.31	15.56	6.10	.67	464.
18.000	9.96	5.90	.3740	-1.49	5 23	11.73	5.10	.71	456.
19.000	6.85	5.67	.3272	-1.61	4 14	8.71	4.78	1.14	448.
20.000	4.20	5.70	.3346	-1.81	3.36	6.81	4.28	1.35	439.
21.000	2.02	5.84	.2064	-1.88	2.96	6.01	3.77	1.31	429.
22.000	.32	6.17	.1909	-1.89	2.98	5 35	3.89	1.13	424.
23.000	-.11	6.57	.2051	-1.75	2.59	6.10	3.96	1.04	415.
24.000	-.53	7.38	.1488	-1.81	2.80	6.88	4.30	.86	393.
25.000	-.47	8.46	.1407	-1.96	3.07	7.80	4.90	.78	373.
26.000	.13	9.79	.1651	-1.69	3.06	8.79	5.54	.88	353.
27.000	1.10	11.31	.2152	-1.58	3.21	10.04	6.39	.96	308.
28.000	2.30	12.97	.2[illegible]94	-1.68	3.65	11.56	7.46	1.03	303.
29.000	4.20	14.49	.3799	-1.49	3.83	12.99	8.67	.98	219.
30.000	6.57	16.23	.3690	-1.18	4.05	14.87	10.11	1.00	209.
32.000	11.00	18.42	.4303	-.72	5.12	19.61	10.04	.22	166.
34.000	15.60	21.73	.5111	-.04	6.45	24.76	11.90	-.03	166.
36.000	20.11	25.01	.5548	-.29	7.08	29.28	14.82	-.05	166.
38.000	24.15	28.12	.5250	-.09	8.59	33.59	17.79	.06	169.
40.000	26.99	29.18	.4533	-.57	10.75	36.44	19.08	.12	169.
42.000	29.66	29.52	.4467	.22	12.44	38.82	19.89	.06	169.
44.000	32.20	29.91	.4457	2.50	15.02	42.01	19.85	.08	169.
46.000	34.85	30.27	.3899	4.79	15.87	44.60	20.31	.00	169.
48.000	36.90	29.29	.3748	6.94	14.95	45.96	19.33	-.08	168.
50.000	38.93	27.64	.3590	7.82	16.34	47.59	18.40	-.11	168.
52.000	41.35	26.30	.3845	7.99	15.73	48.92	17.76	-.04	166.
54.000	45.66	24.75	.4000	8.16	15.65	51.73	18.16	-.11	158.
56.000	49.56	25.83	.3846	8.39	15.61	55.26	19.53	.11	149.
58.000	54.27	25.04	.4049	9.18	15.42	58.98	20.28	-.50	128.
60.000	60.72	23.64	.4025	7.84	18.89	65.62	18.77	-.38	91.
62.000	67.99	22.94	.2683	9.52	17.76	71.77	19.93	.14	56.
64.000	72.70	26.04	.0698	8.36	15.26	75.64	23.17	.44	47.
66.000	73.61	27.15	.1421	5.79	13.32	76.20	23.48	.31	44.
68.000	72.47	28.33	.0140	2.99	12.70	75.54	22.54	-.03	41.
70.000	68.10	22.05	-.1098	-2.01	17.07	70.72	20.21	-.16	39.

TABLE I-3. WIND STATISTICAL PARAMETERS

MARCH

STATION = 723910 POINT MUGU NAS

Z	MEAN U	S.D. U	R(U,V)	MEAN V	S.D. V	MEAN WS	S.D. WS	SKEW WS	NOBS
KM	M/S	M/S		M/S	M/S	M/S	M/S		
.004	.17	3.44	.2749	-.67	2.72	3.64	2.54	2.01	627.
1.000	.01	4.46	.0980	-1.07	3.56	4.56	3.59	1.38	625.
2.000	2.80	5.59	-.1347	-2.20	5.76	7.66	4.29	.60	625.
3.000	5.87	6.94	-.0584	-3.13	7.93	10.80	6.20	.74	624.
4.000	8.28	8.33	.0086	-3.33	9.44	13.44	7.58	.58	626.
5.000	10.46	9.80	.0332	-3.51	11.04	16.05	9.05	.58	625.
6.000	12.45	11.34	.0326	-3.89	12.52	18.63	10.39	.66	625.
7.000	14.53	12.83	.0955	-4.08	13.95	21.26	11.61	.61	625.
8.000	16.78	13.88	.1466	-4.15	15.48	23.78	12.86	.56	625.
9.000	19.16	14.83	.1803	-4.22	16.56	26.28	13.71	.49	622.
10.000	21.48	15.20	.1913	-4.22	16.83	28.23	14.00	.32	618.
11.000	23.65	14.90	.1898	-3.74	16.34	29.54	13.75	.24	613.
12.000	25.01	14.00	.1778	-3.19	15.54	30.10	12.92	.35	611.
13.000	24.75	11.73	.1494	-2.34	13.42	28.53	11.01	.14	610.
14.000	23.00	9.59	.1300	-1.46	11.22	25.78	9.16	.06	608.
15.000	20.65	8.30	.1040	-1.06	9.46	22.83	8.02	.08	606.
16.000	17.72	7.27	.0597	-.98	7.94	19.53	7.03	.30	599.
17.000	14.28	6.24	.0904	-.77	6.03	15.68	5.82	.39	546.
18.000	10.86	5.85	.1111	-.64	4.63	12.06	5.35	.64	542.
19.000	7.76	5.43	.0925	-.66	3.79	9.06	4.74	.72	540.
20.000	5.22	5.15	.1049	-.79	3.39	7.00	4.08	1.12	530.
21.000	3.35	5.43	.1327	-.85	3.11	6.00	3.88	1.70	513.
22.000	1.82	5.90	.1512	-.76	2.85	5.73	3.74	1.37	499.
23.000	1.04	6.06	.2481	-.58	2.52	5.52	3.74	1.41	481.
24.000	.56	6.93	.3130	-.38	2.89	6.22	4.24	1.22	454.
25.000	.94	8.05	.3676	-.10	3.01	7.10	4.92	1.27	438.
26.000	1.75	9.06	.4252	-.16	2.82	8.01	5.38	.99	415.
27.000	3.11	10.15	.4126	-.21	2.81	9.08	6.15	.89	352.
28.000	4.88	11.46	.3720	-.22	3.19	10.69	7.12	.77	337.
29.000	6.75	12.61	.3322	.01	3.52	12.28	8.09	.74	235.
30.000	8.61	14.01	.3322	.16	3.84	14.24	9.04	.60	230.
32.000	13.10	15.20	.3004	1.08	5.10	17.92	10.39	.48	140.
34.000	18.23	17.00	.2374	2.16	5.87	22.49	12.40	.35	140.
36.000	23.92	18.90	.4021	2.06	7.13	27.70	14.68	.23	140.
38.000	28.42	21.42	.4207	2.35	7.98	32.30	17.06	.23	141.
40.000	32.00	22.47	.2574	3.43	9.02	35.86	18.29	.06	141.
42.000	34.47	20.89	.2407	4.32	10.94	37.85	18.12	-.02	141.
44.000	35.85	19.85	.2889	5.68	11.82	39.24	17.60	-.03	141.
46.000	36.63	18.72	.3385	8.00	11.69	39.62	17.95	.11	141.
48.000	38.02	17.73	.2779	8.89	11.39	40.82	17.34	.06	141.
50.000	38.10	17.43	.3243	9.49	12.52	41.64	16.36	.09	140.
52.000	38.10	17.53	.3462	11.01	13.15	41.97	17.03	.04	139.
54.000	39.11	16.97	.3933	11.83	13.03	42.82	17.10	.14	135.
56.000	40.88	17.91	.3389	13.20	13.24	45.11	17.46	.12	128.
58.000	42.73	20.14	.3701	10.88	13.48	46.56	19.01	.00	114.
60.000	44.56	21.80	.3506	8.47	14.20	47.71	21.35	.01	79.
62.000	43.42	22.89	.1844	6.22	15.73	46.95	22.07	.03	59.
64.000	40.14	24.71	.2398	3.02	16.33	44.06	23.43	-.01	47.
66.000	35.52	24.30	.0904	.61	18.38	41.50	21.38	.09	44.
68.000	27.52	24.03	-.0429	-1.05	16.11	35.19	18.58	.33	42.
70.000	20.53	24.04	-.0753	-.50	16.64	31.27	16.88	.33	41.

TABLE I-4. WIND STATISTICAL PARAMETERS

APRIL

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	1.13	3.40	.0110	-.28	2.37	3.59	2.38	1.49	606.
1.000	.64	4.02	.0378	-.84	2.91	3.87	3.28	1.55	602.
2.000	2.99	5.28	.0221	-1.82	5.08	7.09	3.95	.58	601.
3.000	6.26	6.58	.0558	-2.27	7.24	10.32	5.78	.70	601.
4.000	8.91	7.98	.1549	-2.35	9.70	13.47	7.81	.81	601.
5.000	11.64	9.62	.1667	-2.46	12.00	16.71	9.93	.81	600.
6.000	14.06	11.05	.1640	-2.45	13.55	19.47	11.40	.80	600.
7.000	16.12	12.23	.1848	-2.31	14.69	21.88	12.31	.72	597.
8.000	17.99	13.02	.2586	-2.06	16.04	24.29	12.91	.68	594.
9.000	19.87	13.46	.3098	-2.28	16.99	26.34	13.26	.57	594.
10.000	21.73	13.47	.3280	-2.09	16.72	27.68	13.04	.43	592.
11.000	23.38	13.07	.3341	-1.37	15.85	28.54	12.49	.42	583.
12.000	24.53	12.11	.3254	-.27	14.57	28.75	11.55	.45	581.
13.000	23.81	9.96	.3280	.97	12.38	26.92	9.79	.45	580.
14.000	22.19	8.77	.3422	2.07	10.66	24.69	8.81	.64	578.
15.000	19.70	7.85	.3667	2.81	9.16	21.85	8.01	.53	575.
16.000	16.28	6.71	.3610	2.86	7.31	18.05	6.76	.25	571.
17.000	12.49	5.68	.3056	2.63	5.53	13.96	5.57	.20	520.
18.000	9.09	4.87	.1702	2.22	4.32	10.41	4.65	.14	518.
19.000	6.04	4.25	.1429	1.64	3.54	7.42	3.83	.33	515.
20.000	3.63	3.89	.1364	.93	2.88	5.29	3.07	.65	506.
21.000	1.56	3.90	.1849	.47	2.56	4.23	2.53	1.19	500.
22.000	.15	4.20	.2515	.17	2.58	4.16	2.65	1.64	498.
23.000	-.14	4.12	.3030	.19	2.18	3.93	2.51	1.15	477.
24.000	-.10	4.86	.2762	.23	2.65	4.67	2.99	1.07	469.
25.000	.48	5.59	.3023	.29	2.68	5.13	3.51	1.14	459.
26.000	1.54	5.95	.3545	.38	2.71	5.56	3.78	1.01	433.
27.000	3.00	6.31	.3733	.45	3.08	6.33	4.28	.91	383.
28.000	4.24	6.45	.3459	.59	3.32	7.08	4.56	.89	379.
29.000	5.87	6.67	.3919	.81	3.81	8.37	4.88	.83	285.
30.000	7.51	6.90	.3952	.79	4.10	9.65	5.31	.73	272.
32.000	11.66	8.29	.2853	.88	4.83	13.17	7.41	.57	145.
34.000	15.29	9.24	.3127	1.20	5.40	16.56	8.67	.41	145.
36.000	18.09	10.69	.4647	1.74	5.79	19.29	10.27	.53	147.
38.000	19.21	12.62	.3762	.34	7.16	21.07	11.62	.35	147.
40.000	18.30	15.64	.3200	-.84	6.71	21.12	13.36	.48	147.
42.000	14.60	16.73	.0435	1.05	7.85	19.61	13.05	.69	147.
44.000	13.20	16.35	.1467	4.00	8.20	18.86	12.97	.79	147.
46.000	13.49	17.01	.2510	5.06	8.26	19.43	13.66	.74	147.
48.000	12.83	18.45	.2271	5.88	7.14	20.04	13.70	.80	147.
50.000	12.82	18.43	.1091	5.53	7.78	20.18	13.65	.72	146.
52.000	10.65	18.36	.1358	5.19	7.62	19.36	12.62	.78	146.
54.000	7.41	18.33	.2634	4.75	8.85	18.64	11.94	.76	143.
56.000	5.55	18.29	.2315	6.75	8.38	19.91	11.02	.98	135.
58.000	4.19	17.18	.1997	6.60	9.25	18.41	10.03	.83	126.
60.000	2.39	18.41	.2710	4.32	10.37	19.18	9.94	.64	87.
62.000	.19	15.83	.0603	4.30	9.03	16.63	8.30	.36	51.
64.000	-1.08	14.82	-.1153	3.90	10.15	16.16	8.51	.21	45.
66.000	-2.24	14.60	-.3729	1.48	11.98	16.74	8.77	.39	43.
68.000	-2.73	10.39	-.0621	-.87	12.05	14.31	7.21	.32	42.
70.000	-5.14	12.94	.1416	-4.23	8.40	14.76	7.76	.33	41.

TABLE I-5. WIND STATISTICAL PARAMETERS

MAY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	1.30	2.89	-.0515	.26	2.18	3.37	1.88	1.00	612.
1.000	-.17	2.93	.0941	-.38	1.99	2.69	2.33	2.13	610.
2.000	1.74	4.84	-.2700	-1.87	3.89	5.72	3.50	.86	610.
3.000	3.40	6.39	-.2070	-1.63	5.33	7.74	4.86	1.08	610.
4.000	4.90	7.52	-.0767	-1.68	6.33	9.37	5.96	1.09	611.
5.000	6.64	8.51	-.0520	-1.74	7.44	11.13	7.13	1.25	612.
6.000	8.24	9.55	-.0131	-1.66	8.57	12.97	8.19	1.21	611.
7.000	9.68	10.49	.0407	-1.69	9.79	14.68	9.33	1.26	611.
8.000	10.77	11.45	.1371	-1.81	11.06	16.40	10.17	1.19	609.
9.000	12.14	12.48	.2122	-1.92	12.62	18.61	10.93	.94	607.
10.000	13.58	13.43	.2678	-2.00	13.54	20.47	11.52	.75	604.
11.000	14.91	14.02	.2790	-1.91	13.60	21.60	11.85	.73	593.
12.000	16.27	13.62	.2618	-1.14	13.11	22.01	11.78	.87	593.
13.000	16.42	11.37	.2890	-.14	11.06	20.62	9.78	.60	591.
14.000	15.69	9.04	.2777	.89	9.27	18.64	8.18	.37	587.
15.000	14.01	7.27	.2504	1.41	7.76	16.30	6.73	.23	587.
16.000	11.32	5.71	.1877	1.28	6.16	13.15	5.24	.24	581.
17.000	8.00	4.28	.1049	1.22	4.70	9.49	3.96	.36	539.
18.000	4.67	3.55	.0319	.93	3.78	6.32	3.11	.59	539.
19.000	1.97	3.05	.0784	.70	2.83	4.02	2.35	.82	537.
20.000	-.23	2.85	.0604	.27	2.20	3.17	1.75	1.03	532.
21.000	-1.71	2.99	-.0001	.01	2.11	3.49	2.03	.71	524.
22.000	-2.45	2.99	.0017	-.18	2.11	3.84	2.15	.79	521.
23.000	-2.85	2.91	.0357	-.28	1.90	3.95	2.16	.59	499.
24.000	-3.05	3.34	.0954	-.31	2.45	4.52	2.47	.68	491.
25.000	-2.91	3.82	.1566	-.06	2.27	4.64	2.58	.80	476.
26.000	-2.46	4.26	.1862	.07	2.25	4.72	2.64	1.06	442.
27.000	-1.99	4.72	.1972	.16	2.54	4.99	2.78	.99	390.
28.000	-1.14	5.11	.2349	.19	2.46	5.02	2.86	.83	374.
29.000	-.61	5.50	.1637	.12	2.69	5.27	3.15	.99	283.
30.000	-.38	5.77	.1452	.10	2.69	5.53	3.17	.98	267.
32.000	-.14	5.73	.0141	1.57	3.35	6.00	3.22	.75	164.
34.000	.29	6.16	.1085	1.64	3.56	6.40	3.50	.95	164.
36.000	-.95	7.70	.0881	1.09	3.61	7.53	4.18	.70	164.
38.000	-2.83	8.62	-.0405	.12	4.10	8.72	4.76	1.07	165.
40.000	-6.27	8.53	-.3259	-.11	4.44	10.04	5.53	.79	165.
42.000	-10.10	8.29	-.1420	.09	4.26	11.99	6.70	.50	165.
44.000	-13.74	7.50	-.0830	1.94	4.87	14.97	6.94	.13	164.
46.000	-16.22	8.27	.1839	3.97	5.11	17.92	7.20	.08	164.
48.000	-18.02	8.62	.0770	6.08	5.43	20.20	7.57	.12	164.
50.000	-18.81	9.57	.0830	6.93	4.90	21.16	8.33	.19	163.
52.000	-19.66	9.39	-.1482	5.37	6.63	21.63	8.89	.20	162.
54.000	-23.55	9.15	-.1689	3.83	6.06	24.68	8.97	.42	156.
56.000	-26.85	9.98	-.1890	3.42	6.86	27.99	9.79	.03	144.
58.000	-30.67	9.58	.2199	3.27	9.72	32.41	9.29	.31	123.
60.000	-31.80	11.24	.3544	5.80	10.33	34.29	10.03	-.17	86.
62.000	-32.46	13.63	.2634	6.03	9.94	35.00	12.15	-.24	62.
64.000	-33.15	13.73	-.1118	4.54	11.88	35.57	13.44	-.40	49.
66.000	-32.16	13.66	.0086	5.87	9.06	34.18	12.92	.46	49.
68.000	-27.50	17.44	-.1600	4.08	11.65	31.20	15.32	.99	49.
70.000	-25.41	14.03	-.2516	3.34	12.15	28.79	12.99	.61	48.

TABLE I-6. WIND STATISTICAL PARAMETERS

JUNE

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	1.29	2.64	-.0806	.16	2.10	3.23	1.60	.44	621.
1.000	.15	3.12	-.2101	-.26	1.84	2.75	2.37	1.80	618.
2.000	1.97	4.51	-.2519	-.83	3.79	5.38	3.21	.74	618.
3.000	2.91	6.05	-.2061	.61	5.19	7.15	4.60	.91	618.
4.000	3.80	7.24	-.1609	1.54	6.45	8.71	5.91	1.40	618.
5.000	5.13	7.70	-.0856	1.57	7.43	10.05	6.48	.93	618.
6.000	6.40	8.55	-.0274	1.69	8.60	11.65	7.42	.94	619.
7.000	7.94	9.53	-.0108	1.86	9.69	13.33	8.56	.93	616.
8.000	9.52	10.55	.0338	2.07	11.03	15.29	9.69	.85	616.
9.000	11.11	11.60	.1071	2.50	12.47	17.42	10.77	.72	615.
10.000	12.86	12.45	.1538	3.03	13.52	19.47	11.55	.56	613.
11.000	14.69	12.95	.1972	3.64	14.12	21.26	11.98	.37	612.
12.000	16.42	12.61	.2445	4.10	14.01	22.42	11.81	.21	611.
13.000	16.72	11.59	.2693	4.59	12.92	21.97	10.90	.19	609.
14.000	15.27	9.64	.2695	4.93	10.75	19.57	9.11	.11	608.
15.000	12.33	7.66	.2183	4.24	8.54	15.75	7.30	.28	607.
16.000	8.25	5.91	.0946	3.07	6.47	11.18	5.41	.47	605.
17.000	3.85	4.66	-.0249	1.85	4.83	6.96	3.84	.75	555.
18.000	-.22	3.95	-.0310	1.15	3.60	4.76	2.68	.78	554.
19.000	-2.90	3.18	.0441	.84	2.56	4.52	2.32	.76	550.
20.000	-4.93	2.94	-.0075	.66	2.18	5.62	2.55	.41	544.
21.000	-6.43	2.80	.0264	.29	2.13	6.80	2.75	.17	534.
22.000	-7.57	2.65	-.0278	.21	1.86	7.83	2.56	-.15	529.
23.000	-8.54	2.67	-.0235	.08	1.74	8.74	2.58	-.30	517.
24.000	-9.39	3.05	-.0478	-.03	2.06	9.64	2.96	-.20	513.
25.000	-9.80	3.16	-.0248	.03	1.98	10.02	3.06	-.06	495.
26.000	-9.99	3.44	.0324	.06	1.89	10.19	3.37	-.03	467.
27.000	-10.32	3.97	.0532	.07	2.34	10.63	3.85	.10	427.
28.000	-10.59	3.73	.0666	-.01	1.96	10.81	3.61	.01	408.
29.000	-11.14	4.14	.0593	-.09	2.32	11.41	4.05	.06	343.
30.000	-11.68	3.92	.0213	.24	2.10	11.90	3.84	-.11	317.
32.000	-14.56	4.86	-.0749	1.39	2.80	14.91	4.79	.05	144.
34.000	-16.01	5.35	-.0920	1.42	2.75	16.32	5.28	-.28	144.
36.000	-18.38	5.45	-.0571	.58	3.02	18.65	5.38	-.16	145.
38.000	-22.18	5.36	.1446	.49	3.36	22.46	5.25	.03	145.
40.000	-25.91	6.39	.1894	.58	3.65	26.20	6.28	-.19	145.
42.000	-29.67	6.99	-.1242	.41	4.30	29.99	6.98	.20	145.
44.000	-33.15	6.13	-.1053	2.50	5.26	33.66	6.09	-.02	145.
46.000	-35.77	6.75	.1424	4.70	5.17	36.48	6.51	-.34	145.
48.000	-39.50	7.36	.0929	4.73	5.29	39.17	7.26	-.25	144.
50.000	-41.36	8.25	.0216	5.45	6.16	42.22	8.00	.02	142.
52.000	-44.07	8.92	.0796	6.12	6.09	44.95	8.69	-.08	132.
54.000	-46.76	9.41	-.0417	5.38	6.26	47.48	9.39	.10	124.
56.000	-50.38	9.92	-.1146	5.38	6.51	51.09	9.87	.23	117.
58.000	-53.04	11.10	.1542	3.13	7.82	53.71	11.02	.30	90.
60.000	-53.52	12.24	.0233	2.78	10.22	54.47	12.55	.37	62.
62.000	-57.70	14.32	.1882	5.66	14.06	59.59	14.11	-.05	41.
64.000	-55.49	17.34	.2488	8.51	10.03	57.24	16.48	.33	33.
66.000	-52.61	14.41	-.3780	7.18	11.02	54.22	14.32	-.32	32.
68.000	-49.28	18.84	-.0700	5.97	12.72	51.26	18.65	-.09	31.
70.000	-44.92	21.59	.1080	9.20	13.49	48.41	19.95	.07	29.

TABLE I-7. WIND STATISTICAL PARAMETERS

JULY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	1.35	2.58	.0123	.16	1.92	3.07	1.66	.38	574.
1.000	.00	2.50	-.4629	.22	1.40	2.32	1.68	1.59	571.
2.000	1.88	3.29	-.0796	.59	2.81	4.14	2.33	.86	570.
3.000	2.10	3.97	.0695	2.07	3.65	5.33	3.05	.88	568.
4.000	1.90	4.82	.1274	3.15	3.88	6.23	3.62	.98	567.
5.000	1.85	5.44	.0977	3.62	4.19	6.84	4.10	.94	568.
6.000	2.27	6.14	.1123	3.78	4.78	7.68	4.58	1.08	570.
7.000	3.05	6.91	.1715	4.17	5.57	8.78	5.32	1.22	567.
8.000	4.10	7.68	.1976	4.86	6.40	10.16	6.09	1.18	566.
9.000	5.38	8.49	.1722	6.17	7.21	12.04	6.77	1.10	566.
10.000	6.82	9.30	.0947	7.72	7.94	14.10	7.55	.93	564.
11.000	7.58	9.79	.0341	9.21	8.86	15.78	8.21	.69	559.
12.000	8.09	9.79	.0134	10.47	9.23	16.72	8.74	.56	559.
13.000	8.13	9.02	.0923	10.84	9.04	16.43	8.76	.50	559.
14.000	7.15	8.06	.2104	9.49	7.94	14.31	8.03	.58	556.
15.000	4.84	6.81	.2653	7.00	6.18	10.82	6.31	.66	554.
16.000	1.53	5.19	.2382	4.71	4.67	7.50	4.12	.84	548.
17.000	-1.78	3.80	.2063	3.27	3.63	5.62	3.14	.89	510.
18.000	-4.43	3.43	.2597	2.21	3.09	6.15	2.83	.64	508.
19.000	-6.44	2.78	.1945	1.49	2.55	7.18	2.51	.42	501.
20.000	-8.16	2.53	.0819	1.05	2.28	8.56	2.43	.30	499.
21.000	-9.71	2.66	.0432	.59	2.20	9.97	2.64	.20	490.
22.000	-11.06	2.49	-.1100	.27	1.56	11.19	2.42	.18	476.
23.000	-12.36	2.46	-.0643	.07	1.64	12.48	2.41	.00	457.
24.000	-13.76	2.65	.0996	.01	1.90	13.90	2.61	.05	453.
25.000	-14.86	2.62	.0130	.02	1.91	14.98	2.61	.02	438.
26.000	-15.66	2.90	-.0008	.03	1.99	15.79	2.88	-.09	396.
27.000	-16.45	3.17	.0487	.13	2.50	16.64	3.14	-.32	376.
28.000	-17.33	3.03	.0590	.10	2.01	17.44	3.02	-.23	331.
29.000	-18.53	3.65	.0554	.17	2.86	18.75	3.63	.18	287.
30.000	-19.24	3.19	.1541	.29	2.50	19.41	3.17	.06	233.
32.000	-22.68	3.62	-.1768	1.62	2.74	22.90	3.64	-.15	139.
34.000	-23.71	3.45	.0008	1.35	3.06	23.95	3.42	.01	140.
36.000	-26.52	4.35	-.0731	1.03	3.40	26.76	4.32	-.03	140.
38.000	-29.23	4.81	-.1289	1.18	4.27	29.58	4.74	-.21	142.
40.000	-33.29	4.27	.0572	-.08	4.25	33.55	4.33	-.05	142.
42.000	-38.10	4.87	.0443	.05	5.28	38.46	4.87	-.20	142.
44.000	-42.09	5.35	.0585	2.13	5.87	42.56	5.25	-.21	142.
46.000	-44.74	6.25	.1210	4.62	5.34	45.30	6.15	.23	142.
48.000	-47.31	6.55	.1203	4.97	6.18	47.98	6.48	.18	142.
50.000	-51.36	7.16	.1017	5.79	5.95	52.04	7.05	-.01	141.
52.000	-53.83	8.32	.2111	7.11	7.00	54.78	8.07	.04	136.
54.000	-54.76	9.04	.1272	7.42	7.32	55.78	8.80	-.24	129.
56.000	-57.97	10.73	.1770	5.20	9.87	59.10	10.30	.03	122.
58.000	-59.85	13.02	.2448	1.75	12.31	61.18	12.69	-.06	105.
60.000	-60.03	17.21	.1480	2.25	13.50	61.68	16.71	-.75	76.
62.000	-62.04	20.10	.0455	5.62	12.38	63.59	19.77	.08	61.
64.000	-56.71	21.39	.1401	7.79	11.35	58.56	20.77	.13	54.
66.000	-45.11	23.71	.1581	10.43	14.17	49.25	21.80	.04	51.
68.000	-35.08	21.35	-.0473	9.30	21.22	42.90	19.30	.45	49.
70.000	-25.92	22.64	.0388	5.10	25.12	37.96	19.59	.58	46.

TABLE I-8. WIND STATISTICAL PARAMETERS

AUGUST

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	1.24	2.49	.0809	-.03	1.97	3.04	1.54	.37	619.
1.000	-.10	2.55	-.4717	.28	1.39	2.35	1.72	1.43	618.
2.000	1.62	3.44	-.2099	.42	3.00	4.21	2.43	.64	617.
3.000	1.72	4.23	-.0400	1.80	3.56	5.30	2.95	.72	617.
4.000	1.61	4.95	.0464	2.49	3.80	5.91	3.57	1.20	618.
5.000	1.79	5.94	.0732	2.59	4.27	6.60	4.45	1.57	618.
6.000	2.61	6.89	.1395	2.45	5.12	7.65	5.29	1.63	618.
7.000	3.99	7.49	.1877	2.75	5.70	8.79	5.95	1.67	617.
8.000	5.44	8.07	.2096	3.46	6.36	10.13	6.63	1.39	616.
9.000	7.01	8.67	.1543	4.52	6.93	11.80	7.31	1.15	615.
10.000	8.64	9.34	.0924	5.68	7.71	13.76	8.00	.97	612.
11.000	10.04	10.17	.0404	6.99	8.56	15.79	8.78	.76	611.
12.000	10.92	10.32	.0093	7.95	8.74	16.88	8.95	.69	611.
13.000	10.89	9.78	.0099	8.25	8.43	16.75	8.52	.60	610.
14.000	9.67	8.31	.0766	7.42	7.39	14.72	7.44	.52	607.
15.000	7.09	6.86	.1402	5.50	5.63	11.10	6.00	.49	607.
16.000	3.36	5.40	.1231	3.73	4.04	7.34	4.09	.71	598.
17.000	-.27	4.11	-.0176	2.47	3.32	5.19	2.66	.54	560.
18.000	-3.14	3.47	.0831	1.58	2.86	5.09	2.57	.50	559.
19.000	-5.04	3.35	.0115	1.12	2.30	5.91	2.87	.35	551.
20.000	-6.98	3.09	.0214	.71	2.03	7.38	2.93	.25	540.
21.000	-8.66	3.01	.0270	.33	2.05	8.93	2.94	.02	535.
22.000	-10.11	2.64	.0588	.26	1.62	10.25	2.61	-.12	527.
23.000	-11.55	2.62	-.0048	.09	1.59	11.66	2.61	-.01	507.
24.000	-12.94	2.77	-.0222	.07	1.78	13.06	2.75	-.02	506.
25.000	-14.00	2.88	-.0482	.15	1.79	14.12	2.88	-.14	490.
26.000	-14.88	2.85	-.0366	.17	1.81	14.99	2.84	-.14	455.
27.000	-15.66	3.28	.0189	.00	2.22	15.83	3.23	-.13	438.
28.000	-16.43	3.08	.0026	.02	1.81	16.53	3.04	-.18	382.
29.000	-17.25	3.64	.0086	.19	2.62	17.46	3.57	.12	335.
30.000	-17.65	3.53	-.0245	.19	2.08	17.78	3.50	.02	278.
32.000	-20.93	3.57	.0391	1.64	2.78	21.18	3.55	-.02	126.
34.000	-21.71	4.96	.2729	1.17	2.72	21.92	4.88	-.08	126.
36.000	-23.34	5.34	.0641	.72	3.07	23.56	5.30	-.26	128.
38.000	-25.44	6.10	-.0518	.17	3.89	25.74	6.07	.10	130.
40.000	-27.30	7.53	.0218	.10	4.39	27.65	7.51	-.11	132.
42.000	-30.51	7.68	.0360	-.01	4.60	30.87	7.59	.38	132.
44.000	-34.58	8.42	-.1267	1.02	4.68	34.91	8.40	.53	133.
46.000	-36.66	7.63	-.0488	2.53	6.17	37.26	7.60	.01	133.
48.000	-37.52	9.74	-.0958	4.78	7.50	38.62	9.45	-.15	133.
50.000	-38.48	10.98	-.2193	6.08	7.71	39.80	10.64	-.20	133.
52.000	-37.82	13.18	-.1219	6.07	8.79	39.47	12.64	-.44	132.
54.000	-37.13	14.25	.0231	6.34	9.36	39.02	13.64	.02	131.
56.000	-36.07	17.96	.0825	5.18	10.02	38.30	16.81	.12	129.
58.000	-33.72	17.78	-.0014	4.34	10.48	36.15	16.55	.46	115.
60.000	-32.06	17.75	.0782	2.06	12.60	35.07	16.55	.25	85.
62.000	-32.40	19.15	.3019	1.15	13.68	35.85	17.77	-.17	67.
64.000	-24.69	19.63	.1932	3.29	15.19	30.66	17.04	.50	56.
66.000	-16.35	19.05	.0879	1.88	19.21	26.91	16.44	.61	54.
68.000	-11.01	23.18	.3064	1.46	20.89	27.11	18.72	.70	54.
70.000	-1.94	21.64	.2588	2.87	16.06	23.39	13.42	1.18	51.

TABLE I-9. WIND STATISTICAL PARAMETERS

SEPTEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	.85	2.77	.1790	-.28	2.42	3.23	1.96	1.58	525.
1.000	-1.46	3.36	.2005	-.05	2.44	3.31	2.91	2.13	522.
2.000	-.59	4.60	-.0659	.76	4.13	5.33	3.25	.93	522.
3.000	.38	5.74	-.0251	1.60	5.38	6.89	4.13	.91	522.
4.000	1.70	6.73	-.0139	1.66	6.21	8.02	5.00	.95	523.
5.000	2.98	7.44	-.0027	1.44	7.15	9.07	5.91	1.05	523.
6.000	4.24	8.31	.0613	1.15	8.25	10.42	6.90	1.00	522.
7.000	5.75	9.41	.1876	1.26	9.40	12.22	7.87	.99	519.
8.000	7.38	10.70	.2886	1.39	10.78	14.37	8.96	1.04	518.
9.000	9.09	11.97	.3719	1.82	12.11	16.57	10.05	.92	517.
10.000	11.07	13.04	.4053	2.28	13.07	18.73	10.83	.74	517.
11.000	13.32	13.88	.3866	2.77	13.46	20.65	11.50	.64	517.
12.000	15.18	13.41	.3245	3.59	12.87	21.42	11.38	.61	515.
13.000	16.03	12.20	.2809	3.93	11.69	21.00	10.82	.61	512.
14.000	14.70	10.33	.2466	3.62	9.72	18.47	9.43	.66	510.
15.000	11.58	8.23	.2082	2.75	7.68	14.58	7.45	.77	507.
16.000	7.56	6.43	.1642	1.61	5.87	10.16	5.69	.81	503.
17.000	3.59	5.15	.1179	.76	4.57	6.56	4.21	.89	486.
18.000	.50	4.19	.0139	.49	3.52	4.80	2.71	.84	485.
19.000	-1.51	3.71	.0634	.25	2.70	4.21	2.36	.72	482.
20.000	-2.73	3.40	.1054	.21	2.27	4.33	2.33	.59	476.
21.000	-3.68	3.53	.1174	-.16	2.27	4.96	2.57	.26	470.
22.000	-4.78	3.57	.0524	-.09	1.98	5.67	2.71	.19	464.
23.000	-5.49	3.76	.0172	-.02	1.85	6.21	3.01	.18	444.
24.000	-6.04	4.08	.0692	-.05	2.14	6.86	3.26	.03	443.
25.000	-6.54	4.39	.1638	.07	1.96	7.36	3.42	.05	428.
26.000	-7.02	4.62	.1423	.17	1.83	7.74	3.74	.04	394.
27.000	-7.38	4.73	.0804	.16	2.26	8.18	3.88	.15	367.
28.000	-7.50	4.94	.1770	.16	1.88	8.24	4.05	.14	351.
29.000	-7.61	5.53	.1465	.28	2.47	8.63	4.50	.27	304.
30.000	-7.45	5.13	.1535	.42	2.21	8.32	4.21	.22	278.
32.000	-9.04	5.80	.1580	1.46	2.87	10.01	5.03	.52	111.
34.000	-7.35	5.84	.1810	2.60	3.33	9.27	4.45	.36	111.
36.000	-6.06	6.75	.1430	1.06	3.33	8.28	5.07	.58	112.
38.000	-6.80	7.35	-.0398	-.13	4.17	9.39	5.39	.51	112.
40.000	-8.31	8.47	-.0810	-.73	4.00	10.96	6.05	.49	113.
42.000	-9.74	8.52	.0728	.50	5.06	12.12	6.77	.30	113.
44.000	-10.59	8.82	-.0290	1.33	5.93	13.16	7.30	.47	113.
46.000	-10.10	10.47	-.0130	2.60	5.46	13.75	7.64	.78	113.
48.000	-8.38	11.00	-.0924	3.55	5.62	12.95	8.19	.93	112.
50.000	-7.03	11.33	-.0344	4.33	6.78	13.28	8.07	.95	111.
52.000	-4.97	12.70	.0056	4.44	6.81	13.28	8.63	1.05	107.
54.000	-1.85	12.66	-.1766	5.94	6.23	13.65	7.06	.81	104.
56.000	2.75	11.12	-.2022	5.08	7.52	13.08	6.40	.14	99.
58.000	4.59	12.45	.0026	1.80	8.07	14.20	6.38	.60	86.
60.000	4.56	15.02	.0640	2.55	8.38	15.81	8.36	.55	68.
62.000	7.77	15.00	-.1038	5.83	7.52	16.70	9.63	.76	44.
64.000	12.61	12.69	-.0533	6.51	8.79	19.22	8.13	.24	41.
66.000	15.09	12.13	-.3377	5.69	9.80	20.97	7.65	.23	40.
68.000	16.03	10.87	-.0277	4.23	9.21	19.49	9.77	.59	39.
70.000	19.64	12.98	.2132	-1.21	11.05	23.00	12.04	.39	39.

TABLE I-10. WIND STATISTICAL PARAMETERS

OCTOBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	.11	2.97	.3633	-.98	2.85	3.49	2.39	1.99	572.
1.000	-1.48	4.39	.4765	-1.15	3.07	4.15	3.86	2.03	570.
2.000	.02	5.28	-.0365	-.99	4.67	5.99	3.84	1.02	570.
3.000	1.75	6.52	-.0776	-1.09	6.64	8.09	5.02	.93	570.
4.000	3.14	7.73	-.0288	-1.38	8.27	9.99	6.32	1.10	569.
5.000	4.46	8.89	.0629	-1.64	10.04	11.95	7.70	1.07	570.
6.000	5.80	10.19	.1836	-2.00	11.73	14.04	9.03	.90	569.
7.000	7.08	11.41	.2441	-2.04	13.33	16.03	10.25	.89	569.
8.000	8.32	12.65	.2852	-1.82	15.07	18.12	11.44	.93	568.
9.000	9.80	13.69	.3122	-1.89	16.44	20.28	12.06	.86	567.
10.000	11.54	14.45	.3361	-1.71	17.15	21.97	12.48	.74	567.
11.000	13.52	14.93	.3552	-1.39	17.06	23.13	12.78	.65	562.
12.000	15.79	14.70	.4006	-1.01	16.18	23.62	13.03	.62	560.
13.000	16.76	13.33	.3979	-.60	14.01	22.56	12.07	.62	559.
14.000	15.95	11.70	.3481	-.60	11.52	20.36	10.45	.42	553.
15.000	13.96	9.85	.3111	-.81	9.56	17.48	8.84	.34	551.
16.000	11.23	8.13	.2630	-1.01	7.47	13.99	7.30	.34	543.
17.000	8.06	6.58	.2458	-.96	5.67	10.41	5.75	.50	496.
18.000	5.04	5.49	.2422	-.85	4.63	7.66	4.35	.82	491.
19.000	2.79	4.83	.3163	-1.04	3.52	5.70	3.47	1.33	488.
20.000	1.44	4.26	.2828	-.91	2.89	4.58	2.89	1.63	486.
21.000	.81	3.98	.2035	-.88	2.66	4.18	2.61	1.18	478.
22.000	.80	3.92	.2502	-.62	2.65	4.08	2.61	1.22	476.
23.000	1.16	4.15	.2342	-.35	2.24	3.97	2.81	1.70	463.
24.000	1.52	4.78	.1643	-.07	2.58	4.52	3.36	1.83	460.
25.000	2.37	5.33	.1977	-.08	2.48	5.07	3.79	1.60	444.
26.000	3.21	5.72	.1603	-.03	2.38	5.54	4.24	1.60	416.
27.000	4.25	6.62	.1578	.01	2.75	6.70	4.95	1.36	378.
28.000	5.53	7.43	.2923	.11	2.75	7.75	5.77	1.33	371.
29.000	6.92	8.28	.3321	.29	3.29	9.13	6.62	1.25	300.
30.000	8.20	8.84	.3599	.50	3.55	10.09	7.51	1.20	289.
32.000	11.78	10.28	.2582	1.77	3.95	13.47	9.03	1.01	139.
34.000	15.67	10.87	.2372	3.04	5.12	17.08	9.74	.83	139.
36.000	19.74	11.16	.3955	2.89	5.41	20.91	10.70	.62	139.
38.000	23.33	13.08	.4642	2.17	5.66	24.27	12.75	.34	139.
40.000	26.38	14.48	.2461	.74	5.48	27.24	13.92	.20	140.
42.000	28.73	16.24	.0407	.94	5.66	30.01	14.87	.05	140.
44.000	31.20	16.03	-.0037	1.68	6.09	32.21	15.25	-.16	140.
46.000	35.02	16.24	-.0444	3.90	7.41	36.32	15.51	-.27	139.
48.000	39.49	16.64	.1350	5.95	8.41	40.99	16.16	-.58	139.
50.000	42.13	18.27	.1543	7.22	8.19	43.92	17.26	-.42	138.
52.000	45.35	18.06	.1817	7.76	8.80	46.95	17.76	-.33	135.
54.000	47.65	17.94	.3327	8.12	8.82	49.02	16.25	-.34	132.
56.000	50.09	17.10	.3883	8.59	8.72	51.44	17.47	-.38	131.
58.000	50.39	18.01	.4285	7.76	9.83	51.80	18.35	-.26	124.
60.000	52.31	18.43	.4057	8.18	10.67	53.94	18.60	.29	90.
62.000	53.56	20.42	.6356	6.43	11.54	54.98	20.86	.19	65.
64.000	54.17	23.12	.7104	7.67	12.39	55.68	24.07	.47	53.
66.000	51.85	27.18	.5963	4.94	14.79	53.75	27.88	.45	53.
68.000	47.25	32.81	.2508	3.92	15.54	51.04	30.88	.28	52.
70.000	45.35	30.33	.0091	-.05	15.76	49.38	27.91	.14	48.

TABLE I-11. WIND STATISTICAL PARAMETERS

NOVEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	-1.06	3.61	.4099	-1.62	3.04	4.14	2.98	1.64	539.
1.000	-1.48	4.73	.1967	-.92	3.63	4.87	3.05	1.23	534.
2.000	1.38	5.19	-.0700	-1.11	5.26	6.52	3.88	.80	534.
3.000	4.14	6.39	-.0376	-2.14	7.29	9.30	5.39	.94	534.
4.000	6.61	8.14	-.0046	-2.45	9.54	12.31	7.42	1.19	535.
5.000	8.61	9.40	.0930	-2.28	11.06	14.83	8.35	.60	538.
6.000	10.62	10.59	.1446	-2.45	12.80	17.32	9.71	.69	535.
7.000	12.49	12.09	.1654	-2.08	14.25	19.71	10.99	.76	534.
8.000	14.34	13.21	.2628	-2.15	15.80	22.09	12.07	.79	534.
9.000	16.15	14.50	.3202	-2.22	17.34	24.52	13.20	.75	532.
10.000	17.83	15.31	.3434	-2.24	17.79	26.23	13.60	.68	529.
11.000	19.08	15.25	.3177	-2.36	17.51	27.04	13.28	.56	523.
12.000	20.05	14.30	.3298	-1.83	16.77	27.18	12.32	.48	523.
13.000	20.47	12.92	.3186	-1.18	14.93	26.14	11.25	.45	520.
14.000	19.39	11.21	.2976	-.87	12.84	23.79	10.04	.53	512.
15.000	17.12	9.67	.2354	-.73	11.09	20.73	8.95	.39	509.
16.000	14.25	8.17	.3045	-.81	8.74	17.01	7.56	.40	506.
17.000	10.94	6.72	.3313	-.85	6.90	13.25	6.13	.37	461.
18.000	8.02	5.86	.2774	-1.17	5.70	10.32	5.10	.67	456.
19.000	5.78	5.19	.2264	-1.24	4.65	8.15	4.12	.87	448.
20.000	4.14	4.80	.2275	-1.40	3.84	6.63	3.59	.86	440.
21.000	3.17	4.93	.2638	-1.48	3.40	5.98	3.50	.87	432.
22.000	2.76	5.59	.1673	-1.47	3.29	6.10	3.82	1.30	425.
23.000	3.11	5.83	.2266	-1.32	2.77	6.21	3.80	1.24	413.
24.000	3.76	6.61	.2512	-1.15	3.11	7.02	4.42	1.04	407
25.000	4.68	7.66	.3332	-.95	3.30	8.06	5.23	1.09	399.
26.000	6.00	8.71	.4145	-.88	3.25	9.33	6.00	1.11	378.
27.000	7.28	9.91	.4352	-.81	3.55	10.73	7.01	1.05	340.
28.000	8.60	10.91	.4829	-.76	3.93	12.13	7.85	1.10	334.
29.000	9.89	12.15	.5042	-.90	4.05	13.58	8.82	1.02	264.
30.000	11.47	13.03	.5421	-.66	4.32	14.96	9.81	.93	257.
32.000	20.05	15.95	.5868	1.99	5.63	21.79	14.72	.75	99.
34.000	24.41	17.33	.5526	2.79	6.23	25.93	16.41	.70	99.
36.000	29.23	16.78	.5215	3.65	7.42	30.62	16.31	.38	101.
38.000	33	18.38	.6656	2.57	7.36	35.15	17.69	.30	101.
40.000	37 3	19.32	.5942	1.65	7.62	38.74	18.92	.30	101.
42.000	40.88	19.07	.5222	1.57	7.10	41.53	19.03	.16	100.
44.000	45.81	19.82	.4125	2.27	7.98	46.58	19.74	.08	100.
46.000	51.36	21.79	.3918	3.79	9.45	52.32	21.88	-.12	100.
48.000	55.88	23.62	.3384	6.67	11.59	57.35	23.86	-.03	100.
50.000	60.82	26.09	.3974	8.36	13.42	62.61	26.62	-.07	99.
52.000	63.97	27.54	.4548	8.73	15.14	66.21	27.74	-.08	98.
54.000	66.87	27.58	.3958	8.88	14.65	68.88	27.93	-.20	97.
56.000	67.78	26.63	.3155	7.45	14.36	69.68	26.61	-.37	93.
58.000	66.33	26.29	.2997	4.33	16.48	68.54	26.08	-.35	89.
60.000	59.57	27.74	.3832	1.86	18.31	62.91	26.31	-.23	70.
62.000	59.65	27.63	.5009	.58	21.46	63.43	27.35	.00	46.
64.000	55.70	27.12	.6446	-3.02	19.57	59.46	26.14	.50	37.
66.000	54.45	27.08	.6277	-3.28	26.06	61.06	25.27	.10	36.
68.000	54.66	26.08	.5110	.51	23.59	60.08	24.44	.00	36.
70.000	53.62	23.04	.5227	-2.04	23.51	59.15	21.10	.51	34.

TABLE I-12. WIND STATISTICAL PARAMETERS

DECEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	-1.17	3.59	.4117	-2.03	3.25	4.38	3.12	1.34	626.
1.000	-.73	5.99	.2780	-1.88	4.14	5.93	4.67	1.34	622.
2.000	2.72	6.38	-.1024	-2.42	5.52	7.82	4.81	.80	622.
3.000	5.82	7.82	-.0863	-3.43	7.76	11.13	6.55	.66	622.
4.000	8.20	9.43	-.0299	-4.04	9.58	14.02	8.22	.59	623.
5.000	10.35	10.89	.0191	-4.48	11.46	16.68	9.94	.68	622.
6.000	12.61	12.55	.0644	-4.78	13.07	19.35	11.64	.76	622.
7.000	14.57	14.11	.1385	-4.92	14.83	21.89	13.27	.87	622.
8.000	16.56	15.66	.2389	-4.94	16.53	24.54	14.64	.96	621.
9.000	18.53	16.97	.3036	-5.43	17.87	27.10	15.65	.92	616.
10.000	20.25	17.31	.3412	-5.83	17.C.	28.73	15.36	.72	608.
11.000	21.51	17.07	.3458	-5.[illegible]	17.47	29.49	14.95	.51	600.
12.000	22.57	16.19	.3458	-5.09	16.76	29.29	14.83	.58	598.
13.000	21.78	14.09	.3471	-3.98	14.38	26.98	12.93	.50	595.
14.000	20.54	12.01	.3504	-3.14	12.35	24.67	10.94	.39	589.
15.000	18.38	10.15	.3339	-2.62	10.61	21.81	9.20	.60	587.
16.000	15.29	8.46	.3399	-2.08	8.70	18.11	7.57	.40	580.
17.000	12.10	7.10	.3481	-2.10	6.90	14.46	6.30	.65	528.
18.000	8.88	6.34	.3418	-2.06	5.63	11.14	5.55	.88	522.
19.000	5.79	5.42	.3337	-1.94	4.37	8.07	4.53	1.09	511.
20.000	3.41	5.15	.2956	-1.92	3.61	6.31	3.88	1.06	500.
21.000	1.75	5.22	.2074	-1.96	3.31	5.67	3.58	1.04	492.
22.000	.42	5.76	.2559	-2.08	3.25	5.92	3.62	1.08	482.
23.000	.19	6.34	.3203	-2.07	2.93	6.36	3.55	.72	473.
24.000	.09	7.56	.2729	-2.12	3.46	7.53	4.09	.49	452.
25.000	.55	8.77	.3381	-2.30	3.86	8.50	5.00	.49	441.
26.000	1.44	9.80	.4416	-2.53	4.17	9.36	5.84	.64	421.
27.000	2.28	11.31	.4974	-2.76	4.62	10.68	6.91	.91	372.
28.000	3.84	13.05	.5065	-2.76	5.17	12.22	8.35	1.27	364.
29.000	5.94	14.34	.5427	-3.03	6.00	14.06	9.37	1.18	278.
30.000	8.19	15.91	.5888	-2.92	6.70	16.20	10.51	1.08	272.
32.000	12.87	21.23	.6253	-2.34	7.42	21.88	14.00	.80	142.
34.000	20.66	24.50	.6840	-1.05	8.81	29.30	15.63	.51	143.
36.000	28.66	25.74	.7000	-.13	9.80	35.73	17.31	.11	144.
38.000	37.02	26.54	.6913	.07	10.53	42.70	18.95	-.13	144.
40.000	43.95	26.37	.6860	.35	11.28	48.78	19.28	-.32	144.
42.000	50.11	27.07	.5720	3.43	13.29	55.02	20.04	-.52	144.
44.000	57.63	27.50	.4416	6.39	14.22	62.63	19.84	-.69	144.
46.000	64.73	27.95	.3451	9.57	16.10	70.04	20.27	-.68	144.
48.000	70.51	28.56	.3387	12.84	16.79	75.89	21.70	-.46	143.
50.000	73.94	29.62	.2949	14.41	18.13	79.41	23.89	-.25	142.
52.000	75.62	30.96	.2607	15.44	18.46	81.11	25.93	-.23	141.
54.000	77.17	31.75	.2244	15.11	18.57	82.09	28.16	-.23	140.
56.000	78.83	31.51	.1994	12.03	18.45	82.44	29.86	-.28	135.
58.000	78.38	31.65	.2741	11.21	21.12	82.31	30.62	-.07	121.
60.000	75.95	33 96	.3312	8.85	24.06	80.78	32.33	.01	87.
62.000	73.71	31.37	.3101	3.57	28.78	79.15	31.26	-.35	48.
64.000	72.26	29.19	.5334	9.03	22.48	75.79	30.06	-.43	39.
66.000	69.46	30.01	.4224	6.65	23.29	73.37	30.26	-.32	38.
68.000	69.20	31.20	.2920	4.05	25.52	73.75	31.19	-.39	36.
70.000	68.55	32.93	.3178	1.09	25.67	73.32	32.34	-.06	34.

TABLE I-13. WIND STATISTICAL PARAMETERS

ANNUAL

STATION = 723910 POINT MUGU NAS

Z KM	MEAN U M/S	S.D. U M/S	R(U,V)	MEAN V M/S	S.D. V M/S	MEAN WS M/S	S.D. WS M/S	SKEW WS	NOBS
.004	.27	3.31	.3024	-.69	2.77	3.61	2.47	1.86	7026.
1.000	-.51	4.25	.1552	-.68	3.05	3.95	3.54	1.83	6987.
2.000	1.81	5.18	-.1241	-1.07	4.79	6.20	3.97	1.04	6983.
3.000	3.81	6.64	-.1189	-1.09	6.77	8.60	5.62	1.07	6979.
4.000	5.41	8.09	-.0750	-1.04	8.28	10.66	7.14	1.07	6983.
5.000	6.99	9.42	-.0294	-1.10	9.69	12.62	8.59	1.03	6987.
6.000	8.61	10.75	.0162	-1.22	10.98	14.62	9.91	1.03	6983.
7.000	10.25	11.99	.0624	-1.16	12.27	16.63	11.14	1.03	6970.
8.000	11.93	13.22	.1231	-1.02	13.65	18.81	12.29	1.03	6961.
9.000	13.73	14.40	.1563	-.90	14.99	21.11	13.26	.96	6942.
10.000	15.58	15.15	.1655	-.62	15.60	23.01	13.66	.83	6914.
11.000	17.29	15.40	.1527	-.15	15.62	24.35	13.68	.75	6854.
12.000	18.67	14.83	.1299	.56	15.06	24.90	13.25	.70	6841.
13.000	18.63	13.13	.1119	1.22	13.40	23.73	11.72	.54	6818.
14.000	17.33	11.46	.0964	1.49	11.41	21.40	10.29	.47	6776.
15.000	14.90	10.03	.0784	1.23	9.41	18.19	9.06	.51	6748.
16.000	11.66	8.88	.0424	.77	7.45	14.50	7.79	.58	6681.
17.000	8.05	7.93	.0068	.36	5.79	10.95	6.45	.73	6168.
18.000	4.75	7.26	-.0172	.03	4.68	8.43	5.11	1.02	6121.
19.000	2.14	6.61	-.0392	-.20	3.77	6.78	4.07	1.18	6055.
20.000	.09	6.27	-.0656	-.41	3.17	6.07	3.58	1.09	5966.
21.000	-1.45	6.28	-.0640	-.61	2.89	6.09	3.63	.89	5858.
22.000	-2.61	6.49	-.0475	-.67	2.74	6.49	3.83	.72	5767.
23.000	-3.16	6.96	-.0050	-.66	2.47	6.90	4.17	.62	5581.
24.000	-3.65	7.82	.0391	-.61	2.80	7.82	4.65	.54	5461.
25.000	-3.66	8.78	.0786	-.55	2.91	8.55	5.12	.51	5275.
26.000	-3.26	9.78	.1247	-.50	2.95	9.18	5.57	.57	4948.
27.000	-3.01	10.97	.1468	-.49	3.28	10.15	6.12	.64	4469.
28.000	-2.08	12.13	.1879	-.48	3.45	10.91	6.68	.80	4263.
29.000	-1.88	13.50	.1783	-.42	3.85	12.12	7.36	.82	3377.
30.000	-.46	14.70	.2083	-.34	4 08	12.97	8.06	.98	3138.
32.000	1.86	18.75	.2049	.77	5.00	16.64	10.20	.92	1682.
34.000	4.47	21.73	.2856	1.23	5.77	19.58	12.00	.91	1684.
36.000	6.61	24.96	.3443	1.02	6.32	22.62	14.02	.77	1693.
38.000	8.03	28.50	.3100	.56	7.03	25.82	16.14	.74	1703.
40.000	8.58	31.46	.2589	.18	7.71	28.56	17.54	.66	1707.
42.000	8.54	34.29	.2551	1.04	8.87	31.30	18.69	.57	1706.
44.000	9.19	37.49	.2432	2.89	10.00	34.70	19.87	.52	1706.
46.000	10.68	40.70	.2515	5.12	11.07	38.16	21.53	.59	1704.
48.000	12.13	43.40	.2847	6.76	11.40	40.97	22.97	.61	1700.
50.000	12.84	45.55	.2762	7.74	12.09	43.12	24.24	.64	1689.
52.000	13.80	46.84	.2790	8.05	12.34	44.38	25.15	.61	1660.
54.000	14.68	48.28	.2859	8.04	12.46	45.88	25.75	.63	1611.
56.000	15.49	50.13	.2636	7.58	12.52	47.73	26.27	.51	1540.
58.000	17.08	50.98	.2856	6.51	13.80	48.98	26.94	.49	1357.
60.000	18.00	51.93	.2563	5.53	15.53	50.18	27.87	.50	980.
62.000	15.99	54.20	.1856	5.68	16.00	51.61	28.66	.36	664.
64.000	18.00	53.88	.1534	5.86	15.03	50.85	30.10	.53	558.
66.000	20.32	52.06	.0449	4.29	16.46	49.69	30.80	.64	540.
68.000	20.92	49.61	-.0077	2.54	17.25	47.22	31.28	.64	526.
70.000	21.34	45.89	-.0695	.33	17.70	44.62	29.81	.77	503.

TABLE II-1. THERMODYNAMIC STATISTICAL PARAMETERS

JANUARY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1019.0000	4.1046	-.40	284.96	5.21	.25	1242.0000	23.0500	.07	507.	507.	507.
.004	1018.5000	3.9762	-.41	284.89	5.21	.28	1242.0000	23.0400	.04	583.	583.	583.
1.000	904.3900	4.0785	-.48	283.55	5.28	.23	1109.0000	18.3300	-.11	582.	582.	582.
2.000	801.2500	4.8693	-.39	278.87	5.39	-.26	999.8000	15.2700	.38	581.	581.	581.
3.000	708.3200	5.6020	-.40	273.61	5.16	-.55	901.0000	11.6800	.61	581.	581.	581.
4.000	624.4900	6.2332	-.44	267.68	4.83	-.64	812.1000	8.4920	.66	579.	579.	579.
5.000	549.0500	6.7195	-.51	260.96	4.77	-.66	732.5000	6.9810	.42	579.	579.	579.
6.000	481.0000	6.9478	-.53	253.90	4.70	-.50	659.7000	5.7550	.03	578.	578.	578.
7.000	419.7600	6.9804	-.52	246.51	4.74	-.30	593.0000	5.4900	-.18	578.	578.	578.
8.000	364.8400	6.9205	-.49	238.83	4.61	-.20	532.1000	5.4640	-.59	578.	578.	578.
9.000	315.6600	6.7000	-.40	231.14	4.18	-.05	475.7000	6.1980	-1.27	578.	578.	578.
10.000	271.7200	6.2513	-.24	223.97	3.79	.06	422.7000	8.1710	-1.67	576.	576.	576.
11.000	233.0100	5.5791	-.04	218.64	4.01	.60	371.4000	10.6400	-1.22	573.	573.	573.
12.000	199.2100	4.7289	.15	215.30	5.45	.37	322.6000	12.1200	-.48	572.	572.	572.
13.000	170.0200	3.8612	.30	214.44	5.24	-.20	276.4000	10.5100	.12	568.	568.	568.
14.000	145.0300	3.1137	.37	213.44	4.09	-.25	236.8000	7.9750	.21	565.	565.	565.
15.000	123.6100	2.4816	.40	211.37	3.70	.03	203.8000	6.6060	.27	561.	561.	561.
16.000	105.1700	1.9308	.40	209.35	3.94	.10	175.1000	5.8700	.32	556.	556.	556.
17.000	89.4190	1.4606	.36	208.11	3.99	-.13	149.8000	4.8590	.46	516.	516.	516.
18.000	75.9510	1.0944	.29	208.16	3.88	-.28	127.2000	3.7650	.5[illegible]	507.	507.	507.
19.000	64.5590	.8372	.20	209.29	3.55	-.26	107.5000	2.7370	.42	495.	495.	495.
20.000	54.9250	.6694	.17	210.62	3.25	-.31	90.8700	1.9490	.27	488.	488.	488.
21.000	46.7020	.5603	.16	212.09	3.18	-.33	76.8600	1.4220	.27	472.	472.	472.
22.000	39.8910	.4923	.09	213.46	3.15	-.36	65.1100	1.0360	.25	462.	462.	46[illegible]
23.000	34.0560	.4548	.05	214.78	3.29	-.32	55.2500	.8279	.21	447.	447.	447.
24.000	29.0690	.4247	.00	216.10	3.48	-.37	46.9200	.6952	.17	433.	433.	433.
25.000	24.8890	.4018	-.08	217.56	3.69	-.43	39.8600	.5786	.17	411.	411.	411.
26.000	21.3120	.3776	-.12	218.66	3.57	-.64	33.9600	.4826	.00	396.	396.	396.
27.000	18.2730	.3546	-.11	219.98	3.58	-.28	28.9400	.4310	-.24	360.	360.	360.
28.000	15.6820	.3278	-.08	221.50	3.63	.05	24.6700	.4001	-.13	343.	343.	343.
29.000	13.4850	.3111	-.14	223.14	3.54	.10	21.0500	.3818	-.09	276.	276.	276.
30.000	11.5970	.2862	-.16	224.85	3.65	.10	17.9700	.3724	-.23	267.	267.	267.
32.000	8.6061	.1945	.31	230.35	5.67	.41	13.0200	.4154	-.29	145.	146.	144.
34.000	6.4435	.1536	.45	235.52	6.79	.04	9.5370	.3328	-.22	150.	151.	150.
36.000	4.8520	.1253	.19	240.68	8.53	.19	7.0270	.2771	-.39	150.	151.	150.
38.000	3.6753	.1065	-.32	246.15	10.01	.31	5.2090	.2000	-.15	150.	152.	150.
40.000	2.8014	.0964	-.65	251.19	10.12	-.14	3.9870	.1353	-.04	150.	151.	150.
42.000	2.1485	.0872	-.75	257.35	10.35	-.35	2.9030	.1102	.11	150.	151.	150.
44.000	1.6538	.0752	-.75	262.97	9.53	-.31	2.1970	.0924	-.41	150.	149.	150.
46.000	1.2867	.0636	-.69	266.34	8.93	-.16	1.6820	.0769	-1.02	149.	146.	149.
48.000	.9995	.0529	-.59	269.70	7.41	-.75	1.3090	.0585	-1.09	149.	144.	149.
50.000	.7753	.0438	-.54	262.73	6.40	-.30	1.0270	.0504	-.82	148.	147.	148.
52.000	.5992	.0359	-.53	259.32	6.26	-.03	.8051	.0447	-.99	148.	150.	148.
54.000	.4618	.0282	-.33	257.02	5.59	-.13	.6260	.0366	-.75	146.	147.	146.
56.000	.3559	.0216	-.06	255.30	6.48	.46	.4859	.0290	-.50	142.	143.	142.
58.000	.2729	.0166	.11	253.67	6.49	.00	.3748	.0219	-.13	123.	125.	123.
60.000	.2083	.0139	.20	251.11	9.27	.38	.2890	.0173	-.09	91.	93.	91.
62.000	.1544	.0094	.36	245.33	10.48	.67	.2192	.0117	-.22	53.	53.	53.
64.000	.1164	.0077	.58	240.59	11.03	1.49	.1686	.0094	-.64	47.	47.	47.
66.000	.0877	.0062	.98	234.89	13.85	1.43	.1300	.0066	-.07	41.	41.	41.
68.000	.0653	.0060	.99	227.98	14.55	1.53	.0997	.0065	-.58	39.	39.	39.
70.000	.0479	.0034	-.22	222.88	9.25	.02	.0749	.0049	-.48	36.	36.	36.

TABLE II-2. THERMODYNAMIC STATISTICAL PARAMETERS

FEBRUARY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1018.1000	4.1930	-1.09	285.37	4.37	.09	1239.0000	19.7200	.11	453.	453.	453.
.004	1017.7000	4.1991	-1.16	285.03	4.38	.14	1240.0000	19.9000	.05	526.	525.	525.
1.000	903.6800	4.2766	-.99	283.66	4.50	.06	1108.0000	15.3200	.13	525.	525.	525.
2.000	800.6000	4.7661	-.79	278.59	4.47	-.10	999.8000	12.5100	-.07	525.	525.	525.
3.000	707.6200	5.2379	-.67	273.17	4.17	-.47	901.4000	9.4400	.29	525.	525.	525.
4.000	623.7100	5.6252	-.65	266.98	4.04	-.78	813.1000	7.4060	.53	525.	525.	525.
5.000	548.1700	5.9248	-.71	260.18	4.10	-.91	733.5000	6.2790	.50	525.	525.	525.
6.000	479.9900	6.1084	-.76	252.94	4.18	-.86	660.7000	5.4090	.11	525.	525.	525.
7.000	418.6800	6.1496	-.81	245.43	4.25	-.84	594.0000	5.0000	-.01	524.	524.	524.
8.000	363.6800	6.0999	-.83	237.87	4.07	-.59	532.4000	5.2250	-.86	524.	524.	524.
9.000	314.4800	5.8704	-.77	230.42	3.87	.17	475.5000	6.8720	-1.66	523.	523.	523.
10.000	270.6200	5.3917	-.62	223.56	4.01	.75	421.8000	8.9680	-1.52	522.	522.	522.
11.000	232.0200	4.7839	-.42	218.53	4.82	.89	370.1000	10.9400	-1.10	519.	519.	519.
12.000	198.3900	4.0669	-.21	216.01	5.91	.25	320.2000	11.6000	-.35	517.	517.	517.
13.000	169.4600	3.3623	-.05	215.74	4.88	-.44	273.8000	8.9090	.07	516.	516.	516.
14.000	144.7000	2.7846	.03	214.44	3.61	-.37	235.2000	6.8590	.06	514.	514.	514.
15.000	123.4100	2.2429	.03	212.22	3.38	.03	202.7000	6.0370	.10	512.	512.	512.
16.000	105.0600	1.7466	.01	210.10	3.64	-.06	174.3000	5.2890	.15	510.	510.	510.
17.000	89.3650	1.3394	-.03	209.03	3.62	-.27	149.0000	4.2200	.25	473.	473.	473.
18.000	75.9590	1.0443	-.05	208.97	3.40	-.24	126.7000	3.2120	.18	463.	463.	463.
19.000	64.6000	.8415	-.04	209.97	3.12	.02	107.2000	2.3320	-.02	453.	453.	453.
20.000	54.9980	.7007	-.03	211.28	2.90	.09	90.7000	1.7330	-.06	449.	449.	449.
21.000	46.8690	.6043	-.02	212.62	2.87	.10	76.8000	1.2990	.05	437.	437.	437.
22.000	39.9850	.5368	.02	213.88	2.91	.11	65.1400	.9907	-.06	430.	430.	430.
23.000	34.1420	.4886	.06	215.08	2.96	.07	55.3100	.7960	.17	421.	421.	421.
24.000	29.1820	.4528	.07	216.36	2.99	.07	46.9900	.6471	.08	408.	408.	408.
25.000	24.9710	.4240	.11	217.81	3.00	.00	39.9400	.5550	.02	387.	387.	387.
26.000	21.3960	.3972	.16	219.38	2.92	-.17	33.9800	.4879	-.11	366.	366.	366.
27.000	18.3510	.3656	.21	220.85	2.95	-.29	28.9500	.4522	-.13	324.	324.	324.
28.000	15.7520	.3348	.23	222.42	3.19	-.43	24.6700	.4359	-.18	315.	315.	315.
29.000	13.5350	.2972	.23	224.19	3.12	-.28	21.0300	.4049	-.12	250.	250.	250.
30.000	11.6430	.2648	.24	226.21	3.43	-.14	17.9300	.3855	-.06	244.	244.	244.
32.000	8.6740	.2054	.33	232.40	5.30	-.01	13.0200	.3618	.21	142.	145.	139.
34.000	6.5042	.1720	.13	237.98	5.97	-.37	9.5260	.3025	.20	140.	144.	140.
36.000	4.9138	.1371	.08	244.57	7.23	-.14	7.0040	.2634	.11	141.	146.	141.
38.000	3.7407	.1109	.00	250.62	8.26	-.15	5.2020	.1992	-.23	142.	147.	142.
40.000	2.8650	.0932	-.10	255.53	9.07	-.03	3.9090	.1496	-.57	142.	146.	142.
42.000	2.2058	.0799	-.21	260.08	8.84	-.08	2.9570	.1051	-.07	142.	146.	142.
44.000	1.7046	.0690	-.28	263.08	7.79	.01	2.2590	.0785	.12	141.	146.	141.
46.000	1.3205	.0584	-.27	264.01	7.23	.23	1.7430	.0637	-.37	141.	143.	141.
48.000	1.0228	.0485	-.12	263.81	6.88	-.02	1.3510	.0569	-.67	140.	141.	140.
50.000	.7928	.0398	-.05	262.79	6.49	-.15	1.0530	.0469	-.48	140.	145.	140.
52.000	.6129	.0326	.06	261.31	6.28	-.07	.8179	.0396	-.32	137.	142.	137.
54.000	.4731	.0266	.06	260.15	5.57	.23	.6341	.0335	-.34	134.	139.	134.
56.000	.3652	.0208	.27	257.33	5.93	-.04	.4946	.0266	-.17	128.	134.	128.
58.000	.2810	.0168	.38	255.31	6.95	-.11	.3835	.0215	.18	112.	117.	112.
60.000	.2158	.0137	.33	254.07	8.49	.04	.2960	.0162	.09	85.	88.	85.
62.000	.1627	.0109	.55	249.64	9.41	.39	.2275	.0110	.03	52.	58.	52.
64.000	.1217	.0079	.55	241.53	8.63	.26	.1758	.0088	-.09	36.	38.	36.
66.000	.0923	.0067	.64	236.16	9.73	.95	.1361	.0082	.40	31.	31.	31.
68.000	.0692	.0056	.76	226.56	12.28	.69	.1058	.0084	.96	31.	30.	31.
70.000	.0505	.0036	.81	220.49	9.49	-.07	.0790	.0053	.24	25.	24.	25.

TABLE II-3. THERMODYNAMIC STATISTICAL PARAMETERS

MARCH

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1017.0000	4.2210	-.55	285.24	4.33	-.08	1238.0000	19.6900	.34	549.	549.	549.
.004	1016.5000	4.0962	-.49	285.18	4.25	.01	1237.0000	19.2300	.27	628.	628.	628.
1.000	902.2900	4.1066	-.58	282.92	5.26	.40	1109.0000	18.6700	-.42	628.	628.	628.
2.000	793.2300	4.7959	-.54	278.46	5.51	-.18	998.7000	16.2100	.13	628.	628.	628.
3.000	706.3300	5.6137	-.51	272.96	5.29	-.49	900.6000	12.6300	.37	628.	628.	628.
4.000	622.5200	6.2441	-.54	266.87	5.06	-.71	812.0000	9.6520	.46	627.	627.	627.
5.000	547.0600	6.7368	-.59	260.10	5.10	-.83	732.3000	7.9130	.44	626.	626.	626.
6.000	479.0200	7.0602	-.64	252.79	5.03	-.79	659.8000	6.0650	.33	624.	624.	624.
7.000	417.8100	7.1249	-.64	245.30	4.79	-.59	593.1000	4.9820	-.28	624.	624.	624.
8.000	362.9100	7.0320	-.61	237.75	4.38	-.30	531.6000	5.1450	-1.08	625.	625.	625.
9.000	313.8200	6.7401	-.51	230.50	3.78	-.03	474.2000	6.9190	-1.74	623.	623.	623.
10.000	270.1200	6.1252	-.36	223.99	3.64	.43	420.2000	9.5400	-1.53	620.	620.	620.
11.000	231.6600	5.3197	-.18	219.05	4.17	.78	368.6000	11.8400	-.94	618.	618.	618.
12.000	198.1400	4.3510	-.04	216.07	5.55	.24	319.8000	12.9400	-.25	616.	616.	616.
13.000	169.2500	3.3722	.00	215.45	5.29	-.36	273.9000	10.7200	.28	615.	615.	615.
14.000	144.5100	2.6292	.00	214.50	3.98	-.46	234.8000	7.5860	.28	614.	614.	614.
15.000	123.2500	2.0439	-.06	212.53	3.70	-.18	202.1000	6.1030	.18	612.	612.	612.
16.000	104.9700	1.5745	-.15	210.97	3.62	-.21	173.4000	4.8870	.20	607.	607.	607.
17.000	89.3290	1.2288	-.29	210.48	3.30	-.28	147.9000	3.6950	.22	552.	552.	552.
18.000	76.0270	.9754	-.46	210.66	3.06	-.41	125.8000	2.7960	.24	546.	546.	546.
19.000	64.7370	.8011	-.61	211.39	2.77	-.47	106.7000	2.0540	.13	544.	544.	544.
20.000	55.1680	.6765	-.74	212.46	2.83	-.33	90.4700	1.6210	.01	539.	539.	539.
21.000	47.0540	.5896	-.83	213.78	2.84	-.33	76.6900	1.2480	.06	526.	526.	526.
22.000	40.1890	.5118	-.73	215.28	2.76	-.13	65.0400	.9623	-.13	511.	511.	511.
23.000	34.3620	.4717	-.60	216.73	2.70	.10	55.2400	.7563	-.51	493.	493.	493.
24.000	29.4030	.4325	-.49	218.24	2.71	.32	46.9400	.6230	-.85	472.	472.	472.
25.000	25.2000	.3982	-.35	219.77	2.71	.44	39.9500	.5409	-1.27	453.	453.	453.
26.000	21.6240	.3583	-.02	221.35	2.91	.61	34.0300	.4905	-1.22	429.	429.	429.
27.000	18.5640	.3270	.15	222.94	3.20	.83	28.9900	.4566	-1.07	379.	379.	379.
28.000	15.9560	.3028	.26	224.83	3.72	.93	24.7300	.4167	-1.04	362.	362.	362.
29.000	13.7320	.2869	.50	226.62	4.04	1.06	21.1100	.3543	-.75	270.	270.	270.
30.000	11.8370	.2693	.60	228.68	4.38	.74	18.0300	.3286	-.46	257.	257.	257.
32.000	8.8329	.1973	.65	234.18	5.89	.78	13.1500	.2873	.21	116.	119.	113.
34.000	6.6382	.1740	.62	238.74	6.27	.62	9.6960	.2397	.40	116.	119.	115.
36.000	5.0187	.1450	.81	244.35	6.69	.00	7.1620	.2126	.31	115.	118.	115.
38.000	3.8178	.1233	.80	248.17	6.18	.01	5.3720	.1596	.29	116.	119.	116.
40.000	2.9169	.1035	.72	254.65	6.13	.39	4.0090	.1252	.79	116.	119.	116.
42.000	2.2410	.0860	.62	258.10	6.22	.11	3.0260	.1055	.61	116.	119.	116.
44.000	1.7296	.0704	.54	262.04	5.15	.16	2.2930	.0868	.57	116.	117.	116.
46.000	1.3395	.0569	.50	264.53	5.29	-.10	1.7630	.0699	.53	116.	116.	116.
48.000	1.0386	.0463	.51	265.58	5.80	-1.19	1.3610	.0554	.44	116.	115.	116.
50.000	.8073	.0378	.38	265.91	5.83	-.84	1.0580	.0440	.48	115.	116.	115.
52.000	.6270	.0310	.34	264.97	5.30	-.26	.8245	.0371	.22	113.	115.	113.
54.000	.4863	.0252	.38	262.96	5.01	-.07	.6438	.0305	-.02	110.	108.	110.
56.000	.3759	.0202	.47	261.81	6.10	.07	.5005	.0239	-.18	105.	107.	105.
58.000	.2908	.0167	.56	259.80	6.31	-.08	.3896	.0192	-.12	95.	96.	95.
60.000	.2221	.0130	.61	256.21	7.62	-.07	.3018	.0148	-.34	65.	65.	65.
62.000	.1692	.0096	.73	251.36	7.92	.42	.2344	.0106	.55	51.	51.	51.
64.000	.1284	.0072	1.08	246.63	7.80	1.17	.1813	.0077	.34	32.	32.	32.
66.000	.0966	.0054	1.45	241.20	8.02	1.09	.1395	.0064	.82	25.	25.	25.
68.000	.0727	.0046	1.66	232.49	10.88	.62	.1089	.0057	.56	24.	24.	24.
70.000	.0534	.0020	.22	225.78	10.05	-.45	.0825	.0046	1.43	21.	21.	21.

TABLE II-4. THERMODYNAMIC STATISTICAL PARAMETERS

APRIL

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1016.4000	3.2035	-.15	286.08	4.04	-.07	1233.0000	17.9000	.34	498.	498.	498.
.004	1015.9000	3.1168	-.14	285.87	3.95	.01	1233.0000	17.5500	.27	604.	604.	604.
1.000	902.0100	3.2821	-.17	283.61	5.11	.26	1106.0000	18.1100	-.28	603.	603.	603.
2.000	799.1700	3.9966	-.30	279.08	5.07	-.33	996.4000	15.1800	.23	603.	603.	603.
3.000	706.5300	4.7401	-.47	273.80	4.94	-.80	898.0000	12.2200	.75	603.	603.	603.
4.000	622.9600	5.3928	-.63	267.93	4.83	-1.01	809.3000	9.5510	.85	603.	603.	603.
5.000	547.7900	5.8871	-.76	261.40	4.57	-1.08	729.5000	7.5040	.49	603.	603.	603.
6.000	480.0000	6.1199	-.84	254.37	4.31	-1.27	656.9000	6.1310	.26	602.	602.	602.
7.000	418.9900	6.1426	-.91	246.90	4.11	-1.13	590.8000	5.2190	-.35	602.	602.	602.
8.000	364.2500	6.0159	-.91	239.25	3.68	-.70	530.1000	5.1360	-.86	600.	600.	600.
9.000	315.2800	5.7349	-.83	231.77	3.24	-.37	473.8000	6.1330	-1.83	600.	600.	600.
10.000	271.5400	5.2053	-.67	224.76	2.85	.24	420.9000	7.8860	-1.77	598.	598.	598.
11.000	232.9600	4.5327	-.47	218.94	3.22	.87	370.8000	9.7500	-1.37	595.	595.	595.
12.000	199.1900	3.6873	-.24	214.93	4.65	.61	323.1000	10.9800	-.76	592.	592.	592.
13.000	170.0100	2.8438	-.10	214.55	4.91	-.09	276.3000	9.6180	.03	590.	590.	590.
14.000	145.0900	2.1833	-.05	214.46	3.89	-.55	235.8000	6.8110	.25	588.	588.	588.
15.000	123.8000	1.6970	-.05	213.39	3.38	-.20	202.2000	5.2080	.12	586.	586.	586.
16.000	105.5200	1.3119	-.08	212.23	3.41	-.09	173.3000	4.2670	.08	580.	580.	580.
17.000	89.9390	1.0076	-.04	212.08	3.33	-.19	147.8000	3.3750	.20	531.	531.	531.
18.000	76.6360	.7981	-.08	212.33	3.10	-.33	125.8000	2.5280	.27	530.	530.	530.
19.000	65.3410	.6553	-.10	213.08	2.64	-.09	106.8000	1.7830	.02	526.	526.	526.
20.000	55.7510	.5536	-.11	213.86	2.59	.26	90.8300	1.4050	-.20	518.	518.	518.
21.000	47.6130	.4774	-.18	215.19	2.60	.26	77.0900	1.1370	-.01	511.	511.	511.
22.000	40.6960	.4249	-.20	216.76	2.67	.24	65.4100	.9073	.14	508.	508.	508.
23.000	34.8410	.3884	-.16	218.28	2.55	.34	55.6100	.6902	.01	492.	492.	492.
24.000	29.8410	.3578	-.07	219.79	2.61	.35	47.3000	.5633	-.16	483.	483.	483.
25.000	25.5920	.3347	.05	221.31	2.86	.51	40.2900	.4878	-.35	471.	471.	471.
26.000	21.9800	.3126	.10	223.01	2.95	.48	34.3400	.4232	-.39	452.	452.	452.
27.000	18.9020	.2913	.15	224.84	3.05	.41	29.2900	.3838	-.21	404.	404.	404.
28.000	16.2740	.2727	.16	226.73	3.15	.34	25.0100	.3331	-.21	391.	391.	391.
29.000	14.0250	.2550	.16	228.58	3.23	.23	21.3800	.3091	-.09	319.	319.	319.
30.000	12.1090	.2389	.17	230.74	3.43	.18	18.2800	.2883	.01	309.	309.	309.
32.000	9.0443	.2233	.16	236.47	4.23	.13	13.3300	.2902	.33	120.	123.	116.
34.000	6.8250	.1869	-.02	241.96	4.44	.09	9.8280	.2575	.51	122.	125.	120.
36.000	5.1778	.1513	-.19	246.57	5.25	.62	7.3140	.2283	.36	122.	125.	122.
38.000	3.9476	.1218	-.30	250.87	4.73	-.34	5.4810	.1598	.19	123.	126.	123.
40.000	3.0249	.0984	-.34	256.14	4.82	.06	4.1130	.1302	.02	124.	127.	124.
42.000	2.3321	.0787	-.31	261.93	4.28	.10	3.1000	.1064	-.37	124.	126.	124.
44.000	1.8079	.0626	-.22	266.73	4.61	.14	2.3610	.0799	-.45	124.	127.	124.
46.000	1.4058	.0505	-.12	268.26	4.79	-.43	1.8250	.0647	-.30	124.	121.	124.
48.000	1.0951	.0409	-.02	269.81	4.47	-.17	1.4140	.0474	-.27	124.	124.	124.
50.000	.8533	.0334	.09	269.10	4.48	-.56	1.1040	.0388	-.11	123.	121.	123.
52.000	.6645	.0273	.16	268.13	4.47	-.17	.8632	.0304	-.08	123.	123.	123.
54.000	.5169	.0228	.23	265.68	5.10	-.05	.6780	.0262	.22	120.	124.	120.
56.000	.4007	.0185	.27	263.74	5.73	-.55	.5296	.0208	-.37	115.	120.	115.
58.000	.3098	.0152	.41	260.72	6.18	-.70	.4142	.0164	-.11	105.	110.	105.
60.000	.2385	.0125	.54	257.23	7.78	-.51	.3228	.0124	.65	79.	84.	79.
62.000	.1798	.0092	.23	251.06	9.86	.14	.2495	.0096	.65	48.	51.	48.
64.000	.1352	.0069	-.13	243.21	8.88	1.11	.1934	.0080	.80	38.	40.	38.
66.000	.1020	.0059	.15	235.67	9.15	1.96	.1507	.0070	.16	37.	39.	37.
68.000	.0770	.0044	1.56	227.80	12.29	1.59	.1179	.0055	.36	35.	36.	35.
70.000	.0563	.0026	.85	218.16	11.06	1.53	.0900	.0044	.59	30.	31.	30.

TABLE II-5. THERMODYNAMIC STATISTICAL PARAMETERS

MAY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1015.0000	2.8776	-.33	287.71	3.36	.18	1223.0000	15.3500	.05	493.	493.	493.
.004	1014.4000	2.7827	-.22	287.61	3.25	.18	1223.0000	14.7700	.07	602.	602.	602.
1.000	901.2700	2.7293	-.25	286.54	5.66	.40	1093.0000	19.9800	-.37	602.	602.	602.
2.000	800.0300	3.4459	-.41	283.93	5.15	-.56	980.0000	15.6200	.53	602.	602.	602.
3.000	708.7200	4.1163	-.60	278.12	4.51	-.82	886.5000	11.4600	.60	602.	602.	602.
4.000	626.1000	4.6350	-.75	271.90	4.29	-.96	801.2000	9.0110	.49	602.	602.	602.
5.000	551.5700	5.0031	-.89	265.18	4.16	-.84	723.6000	7.3060	.14	602.	602.	602.
6.000	484.2300	5.2577	-.95	257.98	4.21	-.88	653.2000	6.2400	-.14	602.	602.	602.
7.000	423.4900	5.3867	-.98	250.42	4.18	-.88	588.6000	5.1970	-.25	602.	602.	602.
8.000	368.8500	5.4395	-.99	242.65	4.03	-.73	529.0000	4.4190	-.56	602.	602.	602.
9.000	319.9000	5.3498	-.91	234.93	3.48	-.27	473.9000	4.6790	-1.59	601.	601.	601.
10.000	276.0500	5.0350	-.73	227.53	2.93	-.22	422.6000	6.0510	-2.47	600.	600.	600.
11.000	237.2500	4.5621	-.52	221.01	2.84	.30	374.0000	7.5620	-2.09	600.	600.	600.
12.000	203.0300	3.8891	-.32	216.00	3.40	.88	327.6000	8.7140	-1.39	598.	598.	598.
13.000	173.3600	3.1932	-.11	214.06	4.03	.32	282.3000	8.7230	-.52	596.	596.	596.
14.000	147.9100	2.5447	-.02	213.85	3.61	.06	241.6000	6.9150	-.05	594.	594.	594.
15.000	126.1400	2.0315	.01	212.85	3.34	.03	206.5000	5.4830	.09	592.	592.	592.
16.000	107.4300	1.6254	.00	211.93	3.38	-.14	176.7000	4.5710	.27	590.	590.	590.
17.000	91.5960	1.3107	-.05	211.58	3.36	-.49	150.9600	3.7790	.33	548.	548.	548.
18.000	78.0220	1.0525	-.02	211.91	3.07	-.26	128.3000	2.9690	.1[illegible]	547.	547.	547.
19.000	66.5100	.8527	-.02	213.04	2.47	-.14	108.8000	2.1440	.09	545.	545.	545.
20.000	56.7510	.7043	-.04	214.36	2.18	-.01	92.2400	1.6070	.14	540.	540.	540.
21.000	48.4810	.5898	-.09	215.90	2.07	.05	78.2300	1.2150	.14	536.	536.	536.
22.000	41.4670	.5118	-.14	217.75	2.05	.12	66.3500	.9555	.11	529.	529.	529.
23.000	35.5220	.4482	-.15	219.61	1.90	.13	56.3500	.7562	.07	516.	516.	516.
24.000	30.4490	.3968	-.18	221.25	1.98	.11	47.9500	.6111	-.16	503.	503.	503.
25.000	26.1480	.3552	-.17	223.07	1.97	.06	40.8400	.5105	-.21	487.	487.	487.
26.000	22.4890	.3214	-.19	224.99	2.01	.21	34.8200	.4439	-.12	458.	458.	458.
27.000	19.3610	.2905	-.18	226.92	2.12	.27	29.7200	.3967	-.04	417.	417.	417.
28.000	16.6920	.2644	-.17	228.70	2.10	.22	25.4300	.3434	-.20	397.	397.	397.
29.000	14.3980	.2395	-.20	230.52	2.13	.23	21.7600	.3032	-.22	309.	309.	309.
30.000	12.4530	.2185	-.21	232.47	2.05	-.05	18.6600	.2764	-.34	293.	293.	293.
32.000	9.3171	.1544	.44	237.27	3.34	.55	13.6900	.2102	.06	145.	149.	142.
34.000	7.0276	.1299	.38	242.36	3.41	.48	10.1100	.1672	.19	146.	150.	146.
36.000	5.3523	.1049	.42	246.86	3.61	-.23	7.5260	.1453	.26	146.	150.	146.
38.000	4.0702	.0893	.63	252.33	4.01	-.47	5.6210	.1285	.85	148.	152.	148.
40.000	3.1233	.0719	.48	258.03	3.29	.20	4.2180	.0984	.89	147.	151.	147.
42.000	2.4131	.0565	.40	263.92	3.45	-.38	3.1850	.0717	.26	147.	151.	147.
44.000	1.8732	.0452	.39	268.29	3.55	.00	2.4320	.0561	.72	145.	144.	145.
46.000	1.4595	.0372	.29	270.68	4.17	-.12	1.8760	.0428	.48	145.	138.	145.
48.000	1.1330	.0311	.23	271.94	4.42	-.26	1.4590	.0332	.55	144.	139.	144.
50.000	.8892	.0260	.16	271.72	4.42	-.29	1.1400	.0291	.20	144.	129.	144.
52.000	.6939	.0214	.13	269.48	4.45	-.63	.8968	.0244	.53	143.	138.	143.
54.000	.5401	.0178	.13	266.81	4.55	.06	.7060	.0188	.24	141.	139.	141.
56.000	.4189	.0153	.13	263.78	5.28	-.12	.5534	.0157	.06	130.	132.	130.
58.000	.3241	.0125	.03	260.39	5.12	-.28	.4335	.0129	.01	114.	115.	114.
60.000	.2481	.0097	.33	256.26	5.06	.28	.3372	.0108	.07	81.	82.	81.
62.000	.1894	.0080	.93	249.96	6.51	.21	.2639	.0084	.37	54.	55.	54.
64.000	.1426	.0047	.62	241.78	7.05	.36	.2051	.0066	.81	39.	39.	39.
66.000	.1073	.0040	.82	233.48	8.65	.65	.1601	.0044	.48	37.	37.	37.
68.000	.0799	.0039	1.01	222.69	11.80	1.12	.1250	.0034	1.07	36.	36.	36.
70.000	.0587	.0038	1.39	213.01	14.54	1.95	.0960	.0039	.61	34.	34.	34.

TABLE II-6. THERMODYNAMIC STATISTICAL PARAMETERS

JUNE

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1013.5000	2.4860	.12	289.40	2.92	-.15	1213.0000	13.1200	.28	469.	469.	469.
.004	1013.0000	2.4414	.09	289.24	2.92	.02	1213.0000	13.1100	.10	620.	620.	620.
1.000	901.1900	2.4109	-.07	291.46	6.49	-.14	1074.0000	22.5100	.18	620.	620.	620.
2.000	801.7100	3.2544	-.27	289.27	4.85	-.62	963.2000	14 1000	.64	619.	619.	619.
3.000	711.8000	3.9169	-.41	283.21	3.95	-.67	873.6000	9.4770	.39	619.	619.	619.
4.000	630.2100	4.3131	-.51	276.72	3.56	-.73	791.7000	7.4460	.11	619.	619.	619.
5.000	556.4700	4.5154	-.60	270.10	3.47	-.83	716.3000	6.5700	-.10	618.	618.	618.
6.000	489.7800	4.6814	-.69	263.13	3.53	-.93	647.2000	5.8290	-.18	618.	618.	618.
7.000	429.4700	4.7097	-.77	255.80	3.55	-.90	583.8000	5.1290	-.35	616.	616.	616.
8.000	375.1900	4.7177	-.80	248.21	3.56	-.71	525.5000	4.8230	-.34	616.	616.	616.
9.000	326.4400	4.6386	-.78	240.47	3.56	-.53	472.0000	4.6250	-.43	615.	615.	615.
10.000	282.7200	4.5260	-.73	232.90	3.34	-.34	422.3000	4.7340	-1.02	614.	614.	614.
11.000	243.8000	4.3078	-.62	225.79	3.16	-.12	376.1000	5.0780	-1.75	611.	611.	611.
12.000	209.2300	3.8639	-.51	219.80	3.12	-.05	331.7000	6.1970	-1.41	611.	611.	611.
13.000	179.0000	3.4077	-.38	215.44	3.20	.24	289.5000	7.1260	-.89	609.	609.	609.
14.000	152.7200	2.8248	-.33	212.46	3.46	.18	250.5000	7.2570	-.38	608.	608.	608.
15.000	130.0200	2.2323	-.34	210.23	3.57	.02	215.6000	6.5190	-.15	606.	606.	606.
16.000	110.5700	1.7122	-.39	208.81	3.63	.10	184.6000	5.4740	-.15	607.	607.	607.
17.000	93.9080	1.2738	-.39	208.46	3.44	.20	157.2000	4.2410	-.19	560.	560.	560.
18.000	79.8950	.9763	-.40	209.71	2.96	.19	132.8000	2.9920	-.26	557.	557.	557.
19.000	68.0340	.7778	-.37	212.28	2.22	.34	111.7000	1.9020	-.44	555.	555.	555.
20.000	58.0490	.6518	-.34	214.56	1.80	.23	94.2600	1.3160	-.40	551.	551.	551.
21.000	49.6060	.5593	-.35	216.69	1.61	.12	79.7500	1.0420	-.25	543.	543.	543.
22.000	42.4590	.4897	-.36	218.67	1.46	.22	67.6400	.8352	-.22	536.	536.	536.
23.000	36.3950	.4269	-.34	220.56	1.46	.31	57.4900	.6808	-.36	526.	526.	526.
24.000	31.2280	.3786	-.31	222.40	1.48	.41	48.9200	.5799	-.32	520.	520.	520.
25.000	26.8330	.3363	-.29	224.13	1.51	.26	41.7100	.4907	-.32	503.	503.	503.
26.000	23.0900	.3021	-.29	225.88	1.59	.08	35.6100	.4256	-.23	480.	480.	480.
27.000	19.8910	.2670	-.40	227.72	1.75	.26	30.4300	.3695	-.38	447.	447.	447.
28.000	17.1600	.2427	-.34	229.57	1.76	.14	26.0400	.3173	-.54	426.	426.	426.
29.000	14.8220	.2186	-.23	231.37	1.94	.11	22.3200	.2859	-.44	374.	374.	374.
30.000	12.8200	.1968	-.30	233.18	1.87	-.06	19.1500	.2492	-.29	351.	351.	351.
32.000	9.5966	.1740	.34	237.94	3.18	.24	14.0500	.2301	.46	118.	121.	116.
34.000	7.2352	.1488	.22	242.71	3.45	.33	10.3900	.1979	-.28	118.	121.	117.
36.000	5.5001	.1156	.19	247.39	3.98	-.01	7.7430	.1650	.50	118.	121.	118.
38.000	4.1964	.0948	.19	252.25	4.25	-.07	5.7960	.1196	.23	118.	122.	118.
40.000	3.2217	.0784	.20	258.44	3.90	.77	4.3410	.0957	-.02	117.	122.	117.
42.000	2.4887	.0645	.19	264.09	4.16	-.15	3.2810	.0810	.02	117.	121.	117.
44.000	1.9314	.0523	.18	268.17	3.64	-.03	2.5070	.0624	.03	116.	114.	116.
46.000	1.5045	.0431	.23	270.58	4.37	.03	1.9360	.0497	-.09	116.	109.	116.
48.000	1.1741	.0356	.27	271.84	4.53	.03	1.5050	.0389	-.12	115.	109.	115.
50.000	.9160	.0297	.37	272.24	4.81	-.14	1.1720	.0314	-.03	111.	106.	111.
52.000	.7150	.0248	.37	270.36	4.96	-.62	.9198	.0305	-.45	104.	98.	104.
54.000	.5568	.0203	.28	267.78	4.91	-.09	.7228	.0239	-.34	98.	95.	98.
56.000	.4334	.0168	.39	264.20	5.27	-.12	5709	.0181	-.11	93.	95.	93.
58.000	.3349	.0150	.49	260.35	5.47	-.29	.4482	.0145	.34	71.	75.	71.
60.000	.2566	.0121	.69	256.07	6.25	-.17	.3496	.0113	.34	51.	55.	51.
62.000	.1939	.0096	1.10	248.53	8.54	.01	.2723	.0086	.47	30.	32.	30.
64.000	.1454	.0077	1.62	240.97	10.10	.59	.2119	.0061	.66	23.	26.	23.
66.000	.1087	.0047	.66	234.08	12.24	.01	.1638	.0057	.82	22.	25.	22.
68.000	.0811	.0040	.41	223.08	12.74	.52	.1276	.0043	.71	23.	24.	23.
70.000	.0597	.0038	.23	215.46	15.78	1.33	.0976	.0045	-.50	19.	20.	19.

TABLE II-7. THERMODYNAMIC STATISTICAL PARAMETERS

JULY

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1014.0000	2.0284	-.21	291.03	3.00	-.05	1206.0000	12.7900	.06	430.	430.	430.
.004	1013.3000	2.0537	-.12	290.62	2.98	.12	1207.0000	12.7400	-.10	573.	573.	573.
1.000	902.5800	1.9323	-.16	285.89	4.03	-.59	1059.0000	14.2200	.42	574.	574.	574.
2.000	804.1800	2.2150	-.36	282.73	2.80	-.16	954.2000	8.4580	-.18	572.	572.	572.
3.000	715.0000	2.3941	-.44	286.16	2.21	.03	868.0000	6.1600	-.56	572.	572.	572.
4.000	633.8300	2.4572	-.53	279.10	2.04	-.21	789.2000	5.3760	-.26	572.	572.	572.
5.000	560.2200	2.4490	-.57	272.11	2.16	-.43	715.7000	5.2250	-.10	571.	571.	571.
6.000	493.6200	2.4708	-.64	265.40	2.31	-.47	646.6000	4.7280	-.15	571.	571.	571.
7.000	433.4000	2.5482	-.67	258.60	2.43	-.60	582.7000	4.1860	-.34	570.	570.	570.
8.000	379.2200	2.6253	-.72	251.48	2.47	-.67	524.3000	3.8420	-.42	567.	567.	567.
9.000	330.5600	2.6819	-.74	244.11	2.64	-.51	470.8000	3.8720	-.47	567.	567.	567.
10.000	286.9400	2.7053	-.73	236.66	2.59	-.36	421.5000	3.6800	-.80	566.	566.	566.
11.000	248.0700	2.6767	-.66	229.51	2.49	-.21	376.5000	3.0410	-.97	566.	566.	566.
12.000	213.2900	2.4561	-.64	222.70	2.33	-.20	333.6000	3.3190	-.91	565.	565.	565.
13.000	182.7800	2.2635	-.53	216.40	2.32	.12	294.3000	4.1790	-1.14	564.	564.	564.
14.000	155.8900	1.9613	-.42	210.80	2.40	.49	257.7000	4.4050	-.90	563.	563.	563.
15.000	132.4700	1.6327	-.38	205.83	2.65	.46	223.2000	4.2640	-.53	560.	560.	560.
16.000	112.3500	1.3529	-.37	205.48	2.58	.37	190.5000	3.6320	-.31	556.	556.	556.
17.000	95.2740	1.1272	-.46	206.35	2.31	.04	160.9000	2.8090	-.06	513.	513.	513.
18.000	80.8870	.9517	-.58	208.87	2.19	.09	134.9000	2.1960	.11	512.	512.	512.
19.000	68.8380	.7992	-.77	211.92	1.86	-.17	113.2000	1.6380	.37	506.	506.	506.
20.000	58.7140	.6854	-.91	214.48	1.67	-.57	95.3700	1.2820	.44	501.	501.	501.
21.000	50.1700	.5933	-1.01	216.84	1.55	-.47	80.6100	1.0700	-.16	494.	494.	494.
22.000	42.9450	.5229	-1.05	218.68	1.41	-.52	68.4200	.8499	-.30	482.	482.	482.
23.000	36.8100	.4560	-1.15	220.40	1.41	-.06	58.1800	.6828	-.57	466.	466.	466.
24.000	31.5600	.4074	-1.16	222.21	1.43	.11	49.5100	.5784	-.64	459.	459.	459.
25.000	27.1340	.3636	-1.18	223.96	1.54	-.12	42.2100	.4916	-.66	447.	447.	447.
26.000	23.3410	.3297	-1.15	225.74	1.62	-.15	36.0200	.4341	-.72	408.	408.	408.
27.000	20.1090	.2941	-1.21	227.51	1.80	-.18	30.7900	.3852	-.78	386.	386.	386.
28.000	17.3400	.2766	-1.17	229.06	1.74	-.34	26.3700	.3449	-.78	340.	340.	340.
29.000	14.9840	.2424	-1.26	230.70	1.87	-.34	22.6300	.3054	-.81	301.	301.	301.
30.000	12.9420	.2249	-1.12	232.36	1.81	-.17	19.4000	.2726	-.84	256.	256.	256.
32.000	9.7042	.1560	.56	236.70	3.43	.30	14.2900	.2333	-.04	113.	118.	109.
34.000	7.3137	.1279	.53	240.94	3.32	.18	10.5800	.1625	-.18	111.	117.	111.
36.000	5.5393	.1046	.64	245.20	3.43	-.18	7.8750	.1301	.32	111.	117.	111.
38.000	4.2159	.0874	.56	249.97	3.92	-.47	5.8780	.1131	.34	111.	118.	111.
40.000	3.2271	.0726	.52	255.68	3.95	-.39	4.3960	.0842	.33	111.	118.	111.
42.000	2.4860	.0604	.50	260.89	3.53	-.29	3.3190	.0703	.48	110.	117.	110.
44.000	1.9237	.0500	.44	264.50	4.46	-.35	2.5340	.0584	.08	110.	116.	110.
46.000	1.4920	.0419	.35	266.80	5.44	-.41	1.9600	.0473	.22	108.	114.	108.
48.000	1.1598	.0356	.25	268.05	4.96	-.72	1.5080	.0376	.27	107.	111.	107.
50.000	.9030	.0290	.38	267.67	4.22	-.46	1.1750	.0310	.25	103.	106.	103.
52.000	.7020	.0241	.40	265.87	4.26	-.27	.9193	.0259	.03	102.	103.	102.
54.000	.5455	.0202	.41	262.69	5.38	-.10	.7230	.0196	.25	98.	101.	98.
56.000	.4213	.0176	.46	259.11	5.90	.16	.5670	.0160	.64	94.	100.	94.
58.000	.3235	.0153	.58	253.93	7.30	.13	.4444	.0150	.72	81.	86.	81.
60.000	.2459	.0122	.39	249.24	9.70	.03	.3441	.0129	.22	59.	62.	59.
62.000	.1850	.0106	.57	241.31	10.00	.10	.2689	.0123	.49	44.	46.	44.
64.000	.1389	.0081	.71	234.39	10.13	.35	.2073	.0100	.41	37.	39.	37.
66.000	.1027	.0061	.49	227.33	9.44	-.11	.1578	.0094	.87	34.	35.	34.
68.000	.0755	.0045	.71	218.65	10.95	.31	.1204	.0078	.55	35.	35.	35.
70.000	.0553	.0037	1.06	212.89	10.10	.12	.0905	.0053	.41	30.	30.	30.

TABLE II-8. THERMODYNAMIC STATISTICAL PARAMETERS

AUGUST

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1013.6000	2.3730	.01	291.92	2.96	.14	1202.0000	13.1900	.10	516.	516.	516.
.004	1012.8000	2.4543	.00	291.78	2.93	-.05	1201.0000	12.9200	.07	616.	616.	616.
1.000	902.3300	2.0816	-.10	295.65	4.39	-.01	1060.0000	15.9200	.56	616.	616.	616.
2.000	803.8600	2.2778	-.45	292.24	3.48	-.07	955.6000	11.0500	.51	616.	616.	616.
3.000	714.5500	2.5752	-.53	285.64	2.76	-.07	869.2000	7.7700	.10	616.	616.	616.
4.000	633.3500	2.7509	-.62	278.80	2.31	-.04	789.7000	5.9900	-.38	616.	616.	616.
5.000	559.7200	2.7460	-.73	272.11	2.16	-.01	715.3000	5.4950	-.48	616.	616.	616.
6.000	493.1700	2.7352	-.85	265.40	2.21	-.09	646.3000	5.1880	-.51	616.	616.	616.
7.000	433.0200	2.7272	-.92	258.63	2.30	-.02	582.3000	4.6050	-.66	615.	615.	615.
8.000	378.9100	2.7495	-.94	251.57	2.52	-.56	523.8000	4.2560	-.66	614.	614.	614.
9.000	330.2900	2.7915	-.91	244.09	2.79	-.59	470.6000	4.2780	-.54	613.	613.	613.
10.000	286.7000	2.8260	-.86	236.60	2.91	-.39	421.4000	4.1110	-.90	611.	611.	611.
11.000	247.8500	2.8147	-.77	229.42	2.84	-.30	376.3000	3.2420	-1.06	610.	610.	610.
12.000	213.1000	2.6136	-.64	222.76	2.40	-.11	333.3000	3.3410	-1.58	609.	609.	609.
13.000	182.6400	2.4068	-.49	216.68	2.09	.06	293.7000	4.1300	-1.24	608.	608.	608.
14.000	155.8300	2.0609	-.32	211.33	2.48	.47	256.9000	4.8800	-1.06	605.	605.	605.
15.000	132.4700	1.6610	-.13	207.37	3.18	.80	222.6000	5.0630	-.82	603.	603.	603.
16.000	112.3900	1.3078	.02	205.84	3.38	.79	190.3000	4.4020	-.53	601.	601.	601.
17.000	95.3520	1.0330	.03	206.50	3.01	.47	160.9000	3.2590	-.22	561.	561.	561.
18.000	80.9710	.8616	.06	209.18	2.66	.26	134.9000	2.2390	-.19	560.	560.	560.
19.000	68.9310	.7381	.10	212.15	2.13	.22	113.2000	1.5100	-.22	554.	554.	554.
20.000	58.8130	.6459	.11	214.63	1.79	.34	95.4700	1.1630	-.04	544.	544.	544.
21.000	50.2570	.5713	.13	216.76	1.60	.39	80.7700	.9020	-.09	538.	538.	538.
22.000	43.0190	.5117	.14	218.47	1.47	.24	68.6000	.7402	.06	533.	533.	533.
23.000	36.8670	.4540	.18	220.18	1.42	.35	58.3300	.6332	.13	515.	515.	515.
24.000	31.6260	.4084	.18	221.84	1.48	.27	49.6600	.5512	.17	512.	512.	512.
25.000	27.1710	.3674	.15	223.57	1.57	.10	42.3400	.4827	.16	493.	493.	493.
26.000	23.3730	.3291	.07	225.34	1.74	.09	36.1300	.4178	.25	464.	464.	464.
27.000	20.1280	.2979	.03	227.01	1.78	.05	30.8900	.3705	.44	447.	447.	447.
28.000	17.3500	.2799	.03	228.52	1.77	-.07	26.4500	.3317	.35	398.	398.	398.
29.000	14.9790	.2581	-.02	230.11	2.02	-.04	22.6800	.3104	.11	355.	355.	355.
30.000	12.9310	.2376	-.03	231.53	1.95	-.18	19.4600	.2742	-.02	299.	299.	299.
32.000	9.6593	.1281	.44	235.80	4.33	.79	14.3100	.2136	-.19	98.	108.	96.
34.000	7.2572	.1221	.23	239.12	4.54	.83	10.6000	.2135	-.60	101.	111.	101.
36.000	5.4896	.0915	.87	242.78	4.35	.07	7.8910	.1218	.08	101.	112.	101.
38.000	4.1662	.0789	.93	247.52	4.34	.33	5.8780	.1008	.83	101.	112.	101.
40.000	3.1818	.0664	1.03	253.19	4.12	.18	4.3860	.0884	.03	101.	112.	101.
42.000	2.4431	.0545	1.06	257.99	4.06	.26	3.3050	.0661	.60	101.	113.	101.
44.000	1.8860	.0448	1.04	262.71	4.21	-.60	2.5020	.0583	.66	101.	111.	101.
46.000	1.4613	.0377	.86	264.84	4.48	-.50	1.9250	.0426	.74	100.	110.	100.
48.000	1.1339	.0303	.95	264.91	4.99	-.33	1.4920	.0343	.61	98.	104.	98.
50.000	.8797	.0259	.77	265.12	5.22	-.48	1.1570	.0271	1.00	99.	108.	99.
52.000	.6824	.0224	.60	264.06	4.94	-.22	.9006	.0221	.87	98.	107.	98.
54.000	.5289	.0196	.55	261.38	6.11	.09	.7059	.0220	.48	98.	108.	98.
56.000	.4083	.0168	.58	257.89	7.31	.07	.5529	.0163	.29	97.	107.	97.
58.000	.3140	.0150	.63	254.38	7.92	.04	.4314	.0169	1.28	89.	98.	89.
60.000	.2378	.0119	.73	249.36	8.82	.30	.3338	.0124	.79	64.	71.	64.
62.000	.1787	.0091	1.23	242.91	9.17	.48	.2575	.0100	1.00	51.	55.	51.
64.000	.1336	.0072	1.62	235.12	10.60	.94	.1992	.0087	1.42	45.	48.	45.
66.000	.1001	.0061	1.40	229.52	11.64	1.40	.1527	.0095	1.93	44.	45.	44.
68.000	.0743	.0047	.90	220.00	11.08	-.19	.1177	.0078	2.29	45.	45.	45.
70.000	.0545	.0039	.58	213.56	9.91	-.52	.0890	.0060	1.45	40.	40.	40.

TABLE II-9. THERMODYNAMIC STATISTICAL PARAMETERS

SEPTEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1012.9000	2.7514	-.32	292.11	3.54	.46	1201.0000	15.0500	-.10	437.	437.	437.
.004	1012.4000	2.7414	-.29	291.70	3.63	.31	1202.0000	15.5000	.03	523.	523.	523.
1.000	901.7800	2.4946	-.[illegible]	293.60	5.37	-.11	1066.0000	18.6300	.14	523.	523.	523.
2.000	802.5700	2.8849	-.3[illegible]	289.38	3.88	-.36	963.6000	11.4100	.30	523.	523.	523.
3.000	712.5800	3.2397	-.44	283.04	3.19	-.41	875.1000	8.2430	.05	523.	523.	523.
4.000	630.9400	3.4064	-.53	276.81	2.89	-.30	792.5000	7.0690	-.10	523.	523.	523.
5.000	557.1600	3.4431	-.58	270.52	2.76	-.26	716.3000	6.0490	-.13	523.	523.	523.
6.000	490.5100	3.5231	-.58	263.91	2.81	.28	646.5000	5.0910	-.04	523.	523.	523.
7.000	430.3500	3.5289	-.55	256.71	2.77	-.30	583.1000	4.5600	-.16	519.	519.	519.
8.000	376.1200	3.4975	-.53	249.20	2.83	-.41	525.0000	4.4910	-.25	519.	519.	519.
9.000	327.3900	3.4449	-.51	241.43	2.95	-.32	471.7000	4.5390	-.32	518.	518.	518.
10.000	283.7000	3.3647	-.44	233.91	2.99	-.18	422.2000	4.6830	-.72	518.	518.	518.
11.000	244.8400	3.2098	-.32	227.17	2.95	-.23	375.5000	4.8570	-.94	517.	517.	517.
12.000	210.3300	2.8682	-.21	221.42	2.82	-.42	331.0000	5.1510	-.80	517.	517.	517.
13.000	180.1400	2.5332	-.12	216.33	2.76	-.50	290.1000	5.3490	-.57	515.	515.	515.
14.000	153.6900	2.1436	-.08	211.88	2.72	.26	252.7000	5.2230	-.40	511.	511.	511.
15.000	130.7300	1.7375	-.12	208.38	3.02	.41	218.6000	4.9390	-.16	509.	509.	509.
16.000	111.0000	1.3846	-.19	206.75	3.21	.30	187.1000	4.3320	-.04	507.	507.	507.
17.000	94.1650	1.0838	-.28	206.88	3.11	.26	158.6000	3.3320	-.12	493.	493.	493.
18.000	79.9530	.8984	-.29	208.59	2.73	.22	133.6000	2.3730	-.23	488.	488.	488.
19.000	68.0290	.7685	-.31	211.41	2.37	.20	112.1000	1.6210	-.21	484.	484.	484.
20.000	58.0100	.6795	-.37	213.90	2.13	.16	94.4800	1.1990	-.25	479.	479.	479.
21.000	49.5440	.6063	-.38	215.93	2.07	-.12	79.9400	.9567	-.27	473.	473.	473.
22.000	42.3830	.5518	-.38	217.76	1.94	.12	67.8000	.8031	-.38	468.	468.	468.
23.000	36.3020	.4981	-.36	219.65	1.83	.22	57.5700	.6652	-.46	451.	451.	451.
24.000	31.1300	.4511	-.35	221.46	1.83	-.06	48.9700	.5853	-.44	447.	447.	447.
25.000	26.7330	.4071	-.31	223.14	1.85	-.09	41.7400	.5226	-.45	434.	434.	434.
26.000	22.9940	.3698	-.28	224.78	1.92	-.11	35.6400	.4454	-.42	400.	400.	400.
27.000	19.7950	.3392	-.28	226.31	2.02	-.11	30.4700	.3994	-.41	372.	372.	372.
28.000	17.0560	.3087	-.24	227.73	2.03	-.05	26.0900	.3478	-.47	358.	358.	358.
29.000	14.7050	.2851	-.17	229.13	2.29	.06	22.3600	.3119	-.38	319.	319.	319.
30.000	12.6890	.2556	-.21	230.39	2.16	-.25	19.1900	.2785	-.32	300.	300.	300.
32.000	9.4813	.1879	.79	234.37	3.69	.60	14.1200	.2459	.85	95.	98.	92.
34.000	7.1194	.1598	.82	237.02	3.70	.35	10.4800	.1999	1.12	96.	99.	94.
36.000	5.3715	.1303	.56	241.31	4.58	-.22	7.7610	.1789	.66	97.	100.	97.
38.000	4.0745	.1072	1.09	245.79	3.43	.64	5.7790	.1272	.31	97.	100.	97.
40.000	3.1034	.0882	1.22	250.97	4.60	.02	4.3140	.1138	.58	97.	100.	97.
42.000	2.3811	.0722	1.31	256.85	4.10	.18	3.2330	.0815	.82	97.	100.	97.
44.000	1.8369	.0588	1.40	262.05	4.20	.14	2.4440	.0707	.87	97.	100.	97.
46.000	1.4224	.0483	1.45	264.49	4.64	-.50	1.8750	.0571	.87	97.	100.	97.
48.000	1.1041	.0401	1.45	266.30	5.06	-.50	1.4440	.0445	1.10	96.	96.	96.
50.000	.8583	.0336	1.36	266.41	4.99	-.97	1.1220	.0351	1.27	96.	96.	96.
52.000	.6672	.0287	1.22	265.30	5.32	-.58	.8754	.0273	1.47	92.	91.	92.
54.000	.5173	.0243	1.15	263.28	5.65	-.42	.6838	.0235	1.57	89.	88.	89.
56.000	.3998	.0203	1.10	261.58	5.46	-.08	.5329	.0209	1.76	86.	89.	86.
58.000	.3082	.0173	1.08	258.48	6.35	.21	.4158	.0175	1.12	76.	79.	76.
60.000	.2355	.0142	1.28	253.29	7.57	.27	.3237	.0132	1.02	62.	63.	62.
62.000	.1771	.0091	1.49	248.02	8.04	.78	.2492	.0071	.68	42.	44.	42.
64.000	.1324	.0048	.08	240.13	7.45	.72	.1927	.0059	.00	33.	34.	33.
66.000	.0998	.0039	.05	233.91	7.01	.06	.1485	.0047	-.22	32.	32.	32.
68.000	.0746	.0034	.08	224.50	9.94	-.07	.1157	.0042	-.69	32.	32.	32.
70.000	.0549	.0028	.12	218.33	7.44	.19	.0875	.0032	.02	29.	29.	29.

TABLE II-10. THERMODYNAMIC STATISTICAL PARAMETERS

OCTOBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1015.4000	2.8210	-.41	290.37	4.44	.24	1212.0000	19.4800	.07	476.	476.	476.
.004	1014.8000	2.9096	-.48	290.04	4.50	.27	1213.0000	19.7200	.05	574.	574.	574.
1.000	903.8100	4.1885	1.88	290.43	5.75	.03	1081.0000	20.4000	.14	573.	573.	573.
2.000	803.1400	4.3714	.99	285.72	4.84	-.49	977.3000	15.0200	.60	573.	573.	573.
3.000	712.0400	4.6583	.36	279.96	4.09	-.60	884.5000	10.6700	.32	573.	573.	573.
4.000	629.6500	4.8813	-.08	274.09	3.81	-.60	799.2000	8.4640	-.04	572.	572.	572.
5.000	555.3000	4.9854	-.38	267.65	3.71	-.70	721.9000	7.0850	-.10	572.	572.	572.
6.000	488.1500	5.1158	-.54	260.68	3.57	-.80	651.6000	5.6590	-.11	572.	572.	572.
7.000	427.5100	5.0809	-.72	253.22	3.50	-.94	587.6000	5.0270	.46	571.	571.	571.
8.000	372.9400	5.0063	-.83	245.49	3.49	-.89	528.8000	4.8780	1.85	571.	571.	571.
9.000	323.9500	4.8424	-.88	237.83	3.12	-.59	474.2000	4.7120	-.63	570.	570.	570.
10.000	280.1000	4.5417	-.79	230.56	2.84	.03	423.2000	5.9890	-1.37	569.	569.	569.
11.000	241.2600	4.0727	-.63	224.05	3.05	.86	375.2000	7.0820	-1.69	567.	567.	567.
12.000	206.8900	3.5014	-.48	218.72	3.53	.64	329.6000	7.5150	-1.24	565.	565.	565.
13.000	176.8700	2.9987	-.31	214.60	3.46	.53	287.2000	6.9640	-.85	563.	563.	563.
14.000	150.7900	2.5109	-.19	211.47	3.16	.32	248.5000	6.1400	-.38	559.	559.	559.
15.000	128.2700	2.0468	-.15	208.85	3.13	.21	214.0000	5.3430	-.21	556.	556.	556.
16.000	108.9500	1.6502	-.15	207.14	3.11	.14	183.3000	4.5340	-.07	547.	547.	547.
17.000	92.4070	1.2668	-.22	206.79	3.10	-.03	155.7000	3.6450	.03	499.	499.	499.
18.000	78.4370	1.0277	-.19	207.96	2.86	-.10	131.4000	2.7650	.04	493.	493.	493.
19.000	66.7020	.8487	-.14	210.15	2.53	.04	110.6000	1.9300	.10	489.	489.	489.
20.000	56.8130	.7348	-.21	212.32	2.29	.10	93.2300	1.4070	.13	487.	487.	487.
21.000	48.4700	.6478	-.25	214.28	2.21	-.16	78.8000	1.0440	.26	482.	482.	482.
22.000	41.4130	.5833	-.28	216.18	2.06	-.21	66.7400	.8432	.05	479.	479.	479.
23.000	35.4430	.5279	-.33	217.95	2.09	-.24	56.6500	.7127	.05	469.	469.	469.
24.000	30.3510	.4801	-.34	219.66	2.11	-.27	48.1300	.6352	-.12	462.	462.	462.
25.000	26.0390	.4387	-.37	221.29	2.24	-.36	40.9900	.5324	-.16	447.	447.	447.
26.000	22.3660	.3980	-.41	222.71	2.34	-.34	34.9900	.4530	-.12	423.	423.	423.
27.000	19.2260	.3638	-.40	224.02	2.51	-.27	29.9000	.4081	-.31	388.	388.	388.
28.000	16.5360	.3365	-.38	225.29	2.70	-.37	25.5700	.3643	-.53	379.	379.	379.
29.000	14.2340	.3058	-.43	226.57	2.83	-.22	21.8900	.3381	-.50	315.	315.	315.
30.000	12.2690	.2810	-.42	227.86	2.86	-.29	18.7600	.3002	-.45	307.	307.	307.
32.000	9.1563	.2134	.02	231.38	4.41	1.11	13.7900	.2415	-.36	102.	105.	101.
34.000	6.8525	.1845	.07	234.80	4.20	.15	10.1700	.1945	-.10	104.	107.	104.
36.000	5.1546	.1564	.12	239.05	3.89	.21	7.5110	.1710	-.32	104.	107.	104.
38.000	3.9025	.1328	.18	243.93	4.58	-.10	5.5740	.1562	.21	106.	109.	106.
40.000	2.9687	.1087	.17	249.95	5.00	-.18	4.1380	.1279	.49	106.	109.	106.
42.000	2.2734	.0901	.13	255.69	5.35	-.24	3.0980	.1069	.29	107.	110.	107.
44.000	1.7523	.0741	.05	260.87	5.65	-.53	2.3410	.0832	.38	107.	110.	107.
46.000	1.3556	.0611	-.01	265.09	5.72	-.20	1.7820	.0620	.36	105.	108.	105.
48.000	1.0525	.0511	-.05	266.85	5.50	-.45	1.3740	.0535	.20	105.	105.	105.
50.000	.8193	.0415	-.08	266.85	5.10	-.24	1.0690	.0473	.06	102.	103.	102.
52.000	.6365	.0343	-.08	266.09	6.14	-.06	.8336	.0365	.06	101.	105.	101.
54.000	.4943	.0286	-.10	264.08	6.78	.22	.6516	.0280	.01	100.	100.	100.
56.000	.3829	.0239	-.07	262.22	6.31	.18	.5087	.0251	-.13	99.	102.	99.
58.000	.2962	.0202	-.05	259.71	5.96	-.19	.3969	.0209	-.03	94.	97.	94.
60.000	.2253	.0170	.20	255.41	6.54	.51	.3073	.0183	.05	69.	73.	69.
62.000	.1717	.0142	.33	250.43	8.31	.57	.2392	.0158	-.04	55.	59.	55.
64.000	.1282	.0087	-.05	243.30	10.54	1.54	.1843	.0114	-.46	39.	42.	39.
66.000	.0961	.0062	-.31	235.37	6.43	.33	.1421	.0088	-.20	37.	39.	37.
68.000	.0712	.0046	-.29	225.47	10.01	.29	.1103	.0088	-.14	34.	36.	34.
70.000	.0525	.0034	-.04	220.13	9.75	-.13	.0833	.0064	-.21	31.	33.	31.

TABLE II-11. THERMODYNAMIC STATISTICAL PARAMETERS

NOVEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1017.5000	3.5281	-.38	287.93	5.46	.22	1227.0000	23.7900	.02	474.	474.	474.
.004	1017.0000	3.4799	-.38	287.67	5.42	.27	1227.0000	23.5500	-.03	539.	539.	539.
1.000	904.1900	3.5676	-.65	286.74	5.21	.05	1096.0000	17.9300	-.08	540.	540.	540.
2.000	802.1400	4.3139	-.71	281.96	5.25	-.48	989.6000	14.8600	.45	540.	540.	540.
3.000	710.1200	5.1351	-.75	276.86	4.98	-.81	892.5000	11.2800	.87	540.	540.	540.
4.000	627.0400	5.7970	-.79	271.05	4.84	-.89	805.2000	8.6550	.89	540.	540.	540.
5.000	552.2000	6.2420	-.85	264.54	4.75	-.89	726.6000	6.9080	.70	540.	540.	540.
6.000	484.6700	6.5407	-.86	257.58	4.63	-.82	655.1000	5.7090	-.05	540.	540.	540.
7.000	423.8000	6.6209	-.89	250.26	4.47	-.94	589.6000	5.0090	-.17	536.	536.	536.
8.000	369.1100	6.5542	-.88	242.74	4.22	-.72	529.6000	4.7960	-.65	536.	536.	536.
9.000	320.1600	6.3285	-.83	235.28	3.66	-.34	473.9000	5.7010	-1.42	535.	535.	535.
10.000	276.3800	5.8817	-.72	228.10	3.36	-.01	422.1000	7.2350	-1.78	532.	532.	532.
11.000	237.6200	5.3201	-.56	221.64	3.39	.46	373.5000	8.8000	-1.49	523.	523.	523.
12.000	203.4600	4.5681	-.43	216.30	3.93	.47	327.8000	9.7500	-1.04	522.	522.	522.
13.000	173.6700	3.8403	-.28	212.86	4.18	.12	284.4000	9.4610	-.49	519.	519.	519.
14.000	147.9100	3.1157	-.19	210.73	3.62	.17	244.6000	7.9880	-.31	517.	517.	517.
15.000	125.7800	2.4648	-.17	208.71	3.48	.14	210.0000	6.7470	-.19	512.	512.	512.
16.000	106.8300	1.9147	-.14	207.39	3.57	.20	179.5000	5.6690	-.17	509.	509.	509.
17.000	90.7360	1.4605	-.14	206.90	3.63	.19	152.8000	4.5630	-.12	464.	464.	464.
18.000	77.0180	1.1231	-.14	207.52	3.39	.09	129.3000	3.4340	-.05	458.	458.	458.
19.000	65.4450	.8956	-.14	209.01	2.91	.06	109.1000	2.4120	-.03	454.	454.	454.
20.000	55.6750	.7412	-.12	210.60	2.50	.16	92.1100	1.7150	-.11	444.	444.	444.
21.000	47.4260	.6334	-.08	212.07	2.27	.20	77.9100	1.2440	-.14	435.	435.	435.
22.000	40.4490	.5565	-.02	213.68	2.26	.17	65.9500	.9239	-.23	427.	427.	427.
23.000	34.9530	.5000	.02	215.35	2.21	-.14	55.9000	.6959	-.14	418.	418.	418.
24.000	29.5410	.4540	.00	217.11	2.34	-.25	47.4000	.6033	-.06	410.	410.	410.
25.000	25.2950	.4143	.00	218.58	2.58	-.22	40.3100	.5360	-.13	401.	401.	401.
26.000	21.6750	.3830	-.02	219.81	2.66	-.03	34.3500	.4723	-.20	383.	383.	383.
27.000	18.6020	.3453	.08	221.22	2.73	.21	29.2900	.4283	-.20	351.	351.	351.
28.000	15.9710	.3170	.11	222.49	2.76	.15	25.0100	.3939	-.23	344.	344.	344.
29.000	13.7270	.2895	.15	223.73	2.82	.06	21.3700	.3517	.06	280.	280.	280.
30.000	11.8100	.2636	.15	225.04	2.98	-.10	18.2800	.3243	.01	270.	270.	270.
32.000	8.7739	.2071	.49	228.78	3.80	.62	13.4000	.2330	.14	79.	84.	75.
34.000	6.5594	.1676	.74	232.95	4.12	.29	9.8210	.2268	.00	81.	86.	79.
36.000	4.9243	.1352	.85	237.49	5.33	.19	7.2260	.2072	.27	82.	87.	82.
38.000	3.7220	.1157	.86	241.56	6.44	.13	5.3700	.1819	.77	84.	89.	84.
40.000	2.8246	.0951	.89	247.29	6.04	.53	3.9810	.1302	.39	84.	89.	84.
42.000	2.1567	.0818	.86	252.48	7.23	-.58	2.9770	.1070	.60	83.	88.	83.
44.000	1.6575	.0675	1.01	257.69	6.89	-.56	2.2400	.0863	.39	83.	87.	83.
46.000	1.2796	.0560	.96	261.52	6.84	-.46	1.7020	.0666	.89	83.	85.	83.
48.000	.9915	.0469	.79	264.45	6.72	-.52	1.3050	.0534	.97	82.	85.	82.
50.000	.7696	.0389	.62	264.92	6.63	-.35	1.0100	.0466	.96	81.	82.	81.
52.000	.5970	.0321	.52	264.80	6.54	-.28	.7846	.0374	.87	79.	83.	79.
54.000	.4629	.0273	.33	263.26	6.33	-.31	.6121	.0317	.15	77.	82.	77.
56.000	.3590	.0220	.47	261.83	6.93	-.48	.4770	.0258	.36	75.	80.	75.
58.000	.2783	.0179	.52	260.23	7.62	-.24	.3719	.0201	.16	73.	75.	73.
60.000	.2144	.0153	.60	257.09	9.25	.12	.2903	.0147	.36	57.	61.	57.
62.000	.1639	.0135	.61	252.49	10.34	.45	.2259	.0134	.28	37.	39.	37.
64.000	.1225	.0100	.64	243.05	8.50	.16	.1750	.0116	.17	26.	27.	26.
66.000	.0914	.0069	.68	235.97	11.19	.28	.1351	.0092	.05	25.	26.	25.
68.000	.0683	.0057	.80	225.93	13.19	.49	.1054	.0074	-.13	25.	26.	25.
70.000	.0505	.0047	.96	218.76	10.89	.39	.0802	.0062	.21	24.	25.	24.

TABLE II-12. THERMODYNAMIC STATISTICAL PARAMETERS

DECEMBER

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1018.4000	4.4005	-.18	284.92	5.23	.12	1242.0000	23.6700	.05	585.	585.	585.
.004	1017.9000	4.3800	-.22	285.05	5.17	.08	1241.0000	23.3200	.09	629.	629.	629.
1.000	903.9200	4.3982	-.58	283.71	5.44	-.18	1108.0000	19.3500	.19	630.	630.	630.
2.000	800.8900	5.1521	-.76	279.10	5.84	-.66	998.7000	16.8500	.66	630.	630.	630.
3.000	708.0700	6.0929	-.86	273.93	5.72	-1.00	899.8000	12.9700	.97	630.	630.	630.
4.000	624.3900	6.8586	-.96	268.07	5.45	-1.18	810.9000	9.5860	1.04	630.	630.	630.
5.000	549.0800	7.3620	-1.05	261.55	5.25	-1.15	731.0000	7.3540	.72	630.	630.	630.
6.000	481.1900	7.6065	-1.07	254.69	5.07	-1.00	658.0000	6.1930	-.38	629.	629.	629.
7.000	420.1600	7.5943	-1.07	247.56	4.67	-.74	591.1000	5.4040	-.25	629.	629.	629.
8.000	365.4100	7.4038	-1.00	240.08	4.39	-.50	530.2000	6.0640	-1.23	629.	629.	629.
9.000	316.3700	7.0456	-.89	232.59	3.98	-.25	473.8000	7.2960	-1.93	624.	624.	624.
10.000	272.6300	6.5047	-.74	225.51	3.68	.18	421.2000	8.6910	-1.85	621.	621.	621.
11.000	234.0200	5.8029	-.55	219.86	3.73	.65	370.9000	10.2800	-1.34	618.	618.	618.
12.000	200.2300	4.9810	-.36	215.94	4.77	.18	323.2000	11.4100	-.80	612.	612.	612.
13.000	170.9200	4.1274	-.15	214.15	4.79	-.24	278.2000	10.3000	-.41	610.	610.	610.
14.000	145.7700	3.3673	-.04	212.53	4.09	.00	239.1000	8.5640	-.18	606.	606.	606.
15.000	124.1300	2.6694	-.02	210.51	3.95	.07	205.5000	7.2450	-.02	600.	600.	600.
16.000	105.5400	2.0920	-.03	208.69	4.04	.02	176.3000	6.0890	.05	595.	595.	595.
17.000	89.6710	1.5875	-.14	207.94	4.20	-.16	150.3000	5.0610	.14	544.	544.	544.
18.000	76.1540	1.2242	-.27	208.28	4.09	-.37	127.4000	3.8810	.26	536.	536.	536.
19.000	64.7340	.9708	-.43	209.46	3.62	-.37	107.7000	2.8130	.24	523.	523.	523.
20.000	55.0980	.7938	-.54	210.78	3.03	-.18	91.0800	1.9290	.02	512.	512.	512.
21.000	46.9370	.6797	-.58	212.34	2.69	-.16	77.0100	1.3560	-.22	505.	505.	505.
22.000	40.0270	.5969	-.57	213.84	2.68	-.16	65.2100	1.0380	-.37	497.	497.	497.
23.000	34.1870	.5390	-.53	215.27	2.62	-.09	55.3300	.8187	-.53	487.	487.	487.
24.000	29.2240	.4894	-.45	216.69	2.82	-.04	46.9800	.6991	-.64	465.	465.	465.
25.000	25.0090	.4484	-.38	217.85	2.98	.04	39.9900	.5980	-.87	451.	451.	451.
26.000	21.4060	.4098	-.30	218.94	3.15	.04	34.0600	.5505	-1.03	433.	433.	433.
27.000	18.3550	.3758	-.23	220.10	3.37	-.01	29.0500	.4962	-.85	398.	398.	398.
28.000	15.7450	.3437	-.08	221.23	3.64	.09	24.8000	.4498	-.72	383.	383.	383.
29.000	13.5030	.3083	-.10	222.30	3.55	.11	21.1600	.3981	-.67	303.	303.	303.
30.000	11.6000	.2831	-.03	223.60	3.68	.07	18.0700	.3668	-.52	294.	294.	294.
32.000	8.7158	.2147	.81	227.70	4.85	.64	13.3500	.2828	-.17	127.	130.	124.
34.000	6.5006	.1812	.89	232.13	6.10	.46	9.7640	.2678	-.04	126.	129.	125.
36.000	4.8752	.1521	.94	236.41	6.73	.45	7.1880	.2350	.08	126.	129.	126.
38.000	3.6743	.1261	.91	242.00	8.81	.44	5.2930	.2031	.54	125.	129.	125.
40.000	2.7901	.1080	.78	247.40	9.47	.00	3.9310	.1622	.82	125.	129.	125.
42.000	2.1317	.0932	.64	254.25	10.51	-.13	2.9240	.1268	.88	126.	131.	126.
44.000	1.6419	.0810	.48	261.04	9.86	-.39	2.1890	.0970	.85	126.	127.	126.
46.000	1.2724	.0692	.30	266.04	10.18	-.25	1.6670	.0766	.49	126.	129.	126.
48.000	.9890	.0589	.22	267.88	9.92	-.04	1.2860	.0645	.27	126.	129.	126.
50.000	.7701	.0503	.13	267.97	9.03	-.35	1.0000	.0548	.28	125.	124.	125.
52.000	.5991	.0415	.11	266.33	7.94	-.62	.7829	.0459	.09	125.	123.	125.
54.000	.4651	.0338	.10	263.71	6.80	-.60	.6143	.0397	.04	125.	120.	125.
56.000	.3599	.0274	.15	261.18	6.59	-.46	.4798	.0347	.03	119.	121.	119.
58.000	.2787	.0214	.28	258.69	7.51	.21	.3751	.0278	-.1	107.	109.	107.
60.000	.2141	.0170	.58	255.93	9.94	.01	.2920	.0217	-.11	79.	84.	79.
62.000	.1654	.0134	1.20	251.01	12.67	.22	.2307	.0162	.21	43.	47.	42.
64.000	.1253	.0114	1.91	243.10	14.74	.91	.1798	.0119	.30	32.	33.	32.
66.000	.0943	.0102	2.18	239.28	16.60	1.17	.1374	.0099	.41	31.	32.	31.
68.000	.0715	.0095	2.18	231.61	22.40	1.43	.1077	.0090	.58	28.	29.	28.
70.000	.0540	.0089	2.10	225.68	23.65	1.16	.0834	.0102	.89	26.	27.	26.

TABLE II-13. THERMODYNAMIC STATISTICAL PARAMETERS

ANNUAL

STATION = 723910 POINT MUGU NAS

Z KM	MEAN P MB	S.D. P MB	SKEW P	MEAN T DEG K	S.D. T DEG K	SKEW T	MEAN D G/M3	S.D. D G/M3	SKEW D	NOBS P	NOBS T	NOBS D
.000	1016.0000	3.9412	.17	287.95	4.98	-.18	1224.0000	24.0100	.36	5887.	5887.	5887.
.004	1015.4000	3.9054	.20	287.86	4.87	-.16	1223.0000	23.5200	.36	7017.	7016.	7016.
1.000	902.7600	3.5853	.11	288.10	7.12	.10	1089.0000	26.6900	-.12	7016.	7016.	7016.
2.000	801.5300	4.3049	-.60	284.09	7.20	-.24	981.4000	22.4700	.15	7012.	7012.	7012.
3.000	710.1100	5.4419	-.74	278.35	6.56	-.46	887.6000	16.4800	.30	7012.	7012.	7012.
4.000	627.4000	6.3998	-.77	272.15	6.18	-.59	802.2000	12.2400	.31	7008.	7008.	7008.
5.000	552.7800	7.0981	-.80	265.51	6.11	-.60	724.6000	9.7190	.21	7005.	7005.	7005.
6.000	485.4100	7.6328	-.77	258.54	6.20	-.52	653.5000	7.8740	.03	7000.	7000.	7000.
7.000	424.6600	7.9381	-.73	251.25	6.28	-.39	588.3000	6.5100	-.05	6986.	6986.	6986.
8.000	370.0700	8.0994	-.65	243.73	6.29	-.21	529.5000	5.7390	-.22	6981.	6981.	6981.
9.000	321.1500	8.1003	-.55	236.19	6.09	.00	473.3000	5.8350	-1.16	6967.	6967.	6967.
10.000	277.4000	7.9069	-.40	228.99	5.78	.11	421.8000	6.9860	-1.87	6947.	6947.	6947.
11.000	238.6700	7.5059	-.24	222.79	5.31	.12	373.2000	8.7340	-1.80	6917.	6917.	6917.
12.000	204.5300	6.7732	-.10	217.99	5.03	-.20	326.9000	10.3900	-1.21	6896.	6896.	6896.
13.000	174.8300	5.9621	.04	215.06	4.22	-.32	283.3000	11.0700	-.57	6873.	6873.	6873.
14.000	149.1500	5.0045	.11	212.68	3.74	.13	244.4000	10.6900	-.13	6844.	6844.	6844.
15.000	127.0100	4.0616	.13	210.31	4.02	.17	210.5000	9.6450	.07	6809.	6809.	6809.
16.000	107.9900	3.2637	.14	208.76	4.12	.17	180.3000	7.9950	.09	6765.	6765.	6765.
17.000	91.7970	2.6230	.14	208.46	3.91	.09	153.5000	6.1960	.04	6254.	6254.	6254.
18.000	78.0250	2.1588	.16	209.40	3.48	-.14	129.9000	4.5000	-.03	6197.	6197.	6197.
19.000	66.4080	1.8323	.17	211.16	3.06	-.43	109.6000	3.1890	-.01	6128.	6128.	6128.
20.000	56.5090	1.5973	.18	212.89	2.92	-.48	92.6200	2.3920	-.05	6052.	6052.	6052.
21.000	48.3060	1.4130	.17	214.63	2.97	-.51	78.4000	1.9000	-.04	5952.	5952.	5952.
22.000	41.2820	1.2645	.17	216.30	3.03	-.55	66.4800	1.5910	.06	5862.	5862.	5862.
23.000	35.3240	1.1346	.14	217.92	3.13	-.58	56.4600	1.3510	.12	5701.	5701.	5701.
24.000	30.2620	1.0222	.10	219.55	3.28	-.62	48.0100	1.1800	.14	5574.	5574.	5574.
25.000	25.9580	.9226	.06	221.14	3.46	-.63	40.8800	1.0390	.13	5385.	5385.	5385.
26.000	22.2820	.8359	.04	222.68	3.67	-.58	34.8500	.9191	.11	5092.	5092.	5092.
27.000	19.1690	.7599	.00	224.30	3.89	-.52	29.7600	.8306	.06	4673.	4673.	4673.
28.000	16.4820	.6857	.00	225.81	4.07	-.51	25.4200	.7511	.03	4436.	4436.	4436.
29.000	14.2240	.6272	-.06	227.48	4.21	-.44	21.7800	.6917	-.01	3671.	3671.	3671.
30.000	12.2490	.5635	-.06	229.05	4.37	-.48	18.6200	.6305	-.05	3447.	3447.	3447.
32.000	9.1077	.4387	.08	233.68	5.57	-.07	13.5900	.5425	-.10	1400.	1446.	1367.
34.000	6.8398	.3520	.06	238.18	6.02	-.23	10.0100	.4507	-.11	1411.	1459.	1402.
36.000	5.1674	.2832	.04	242.94	6.67	-.22	7.4120	.3733	-.20	1413.	1463.	1413.
38.000	3.9254	.2267	.00	247.88	7.23	-.25	5.5190	.2921	-.19	1421.	1475.	1421.
40.000	2.9985	.1828	-.05	253.38	7.41	-.44	4.1230	.2220	-.12	1420.	1473.	1420.
42.000	2.3046	.1488	-.12	259.91	7.51	-.64	3.1010	.1756	-.12	1420.	1473.	1420.
44.000	1.7810	.1205	-.16	263.57	6.94	-.60	2.3530	.1418	-.15	1416.	1448.	1416.
46.000	1.3815	.0972	-.19	266.27	6.89	-.32	1.8060	.1149	-.22	1410.	1419.	1410.
48.000	1.0735	.0786	-.19	267.34	6.72	-.45	1.3980	.0913	-.25	1402.	1402.	1402.
50.000	.8348	.0633	-.20	266.86	6.63	-.42	1.0890	.0724	-.29	1387.	1383.	1387.
52.000	.6484	.0514	-.19	265.31	6.52	-.43	.8506	.0589	-.31	1365.	1378.	1365.
54.000	.5027	.0416	-.16	263.06	6.39	-.20	.6652	.0488	-.31	1336.	1359.	1336.
56.000	.3888	.0332	-.08	260.64	6.76	-.19	.5197	.0402	-.27	1283.	1330.	1283.
58.000	.2995	.0261	.01	257.84	7.18	-.21	.4047	.0328	-.14	1140.	1182.	1140.
60.000	.2289	.0203	.05	254.27	8.68	-.05	.3139	.0258	-.12	842.	891.	842.
62.000	.1738	.0154	.10	248.47	9.94	.26	.2440	.0204	-.02	500.	590.	560.
64.000	.1305	.0114	.11	240.89	10.43	.77	.1891	.0162	-.07	427.	445.	427.
66.000	.0981	.0087	.18	234.41	11.27	1.03	.1461	.0129	.09	396.	407.	396.
68.000	.0733	.0069	.33	225.21	13.52	1.23	.1136	.0106	-.07	387.	392.	387.
70.000	.0539	.0053	.89	218.45	13.05	1.22	.0861	.0086	.02	345.	350.	345.

TABLE III-1. MOISTURE RELATED STATISTICAL PARAMETERS

JANUARY

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	8.632	3.620	.25	285.88	5.30	.15	276.74	6.62	-.51	507.	507.
.004	8.653	3.678	.18	285.81	5.29	.17	276.71	6.84	-.59	582.	583.
1.000	4.542	2.701	.77	284.11	5.24	.21	266.90	8.51	-.37	551.	582.
2.000	2.835	2.010	1.34	279.28	5.42	-.27	260.27	9.12	-.18	508.	581.
3.000	1.819	1.460	1.64	273.93	5.21	-.56	254.27	9.82	-.31	493.	581.
4.000	1.137	.956	1.73	267.93	4.88	-.65	248.57	9.95	-.36	499.	579.
5.000	.714	.617	1.74	261.15	4.83	-.68	243.42	9.64	-.39	511.	579.
6.000	.392	.336	1.47	254.03	4.75	-.51	237.18	9.32	-.43	516.	578.
7.000	.220	.186	1.33	246.60	4.78	-.31	231.55	8.94	-.48	515.	578.
8.000	.117	.092	1.58	238.89	4.63	-.20	226.33	7.63	-.54	430.	578.
9.000	.062	.040	.99	231.16	4.21	-.04	221.47	6.26	-.58	177.	578.
10.000	.025	.016	1.19	223.98	3.80	.07	214.31	5.28	-.11	112.	576.
11.000	.011	.007	1.07	218.64	4.01	.60	208.73	4.36	.17	54.	573.
12.000	.006	.003	.95	215.30	5.45	.37	204.89	3.79	-.19	50.	572.
13.000	.005	.002	.26	214.44	5.24	-.20	203.68	2.90	-.24	32.	568.
14.000	.004	.001	.34	213.44	4.09	-.25	201.85	2.54	-.15	16.	565.
15.000	.002	.001	.83	211.37	3.70	.03	198.08	3.55	.47	8.	561.
16.000	99.999	99.999	999.99	209.35	3.94	.10	999.99	99.99	999.99	0.	556.
17.000	99.999	99.999	999.99	208.11	3.99	-.13	999.99	99.99	999.99	0.	516.
18.000	99.999	99.999	999.99	208.16	3.88	-.28	999.99	99.99	999.99	0.	507.
19.000	99.999	99.999	999.99	209.29	3.55	-.26	999.99	99.99	999.99	0.	495.
20.000	99.999	99.999	999.99	210.62	3.25	-.31	999.99	99.99	999.99	0.	488.
21.000	99.999	99.999	999.99	212.09	3.18	-.32	999.99	99.99	999.99	0.	472.
22.000	99.999	99.999	999.99	213.46	3.15	-.36	999.99	99.99	999.99	0.	462.
23.000	99.999	99.999	999.99	214.78	3.29	-.32	999.99	99.99	999.99	0.	447.
24.000	99.999	99.999	999.99	216.10	3.48	-.37	999.99	99.99	999.99	0.	433.
25.000	99.999	99.999	999.99	217.56	3.69	-.43	999.99	99.99	999.99	0.	411.
26.000	99.999	99.999	999.99	218.66	3.57	-.64	999.99	99.99	999.99	0.	396.
27.000	99.999	99.999	999.99	219.98	3.58	-.28	999.99	99.99	999.99	0.	360.
28.000	99.999	99.999	999.99	221.50	3.63	.05	999.99	99.99	999.99	0.	343.
29.000	99.999	99.999	999.99	223.14	3.54	.10	999.99	99.99	999.99	0.	278.
30.000	99.999	99.999	999.99	224.85	3.85	.10	999.99	99.99	999.99	0.	267.

TABLE III-2. MOISTURE RELATED STATISTICAL PARAMETERS

FEBRUARY

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	9.815	3.237	-.09	286.42	4.49	.01	279.02	5.50	-.97	453.	453.
.004	9.752	3.169	-.08	286.07	4.52	.07	278.96	5.40	-.98	525.	525.
1.000	4.591	2.604	.59	284.25	4.44	.05	266.97	9.09	-1.05	484.	525.
2.000	2.608	1.855	1.08	279.01	4.46	-.06	258.88	10.02	-.65	453.	525.
3.000	1.639	1.269	1.22	273.51	4.21	-.44	252.89	10.27	-.58	432.	525.
4.000	.974	.799	1.62	267.25	4.11	-.77	247.00	9.64	-.47	439.	525.
5.000	.597	.497	1.83	260.39	4.16	-.90	241.89	8.94	-.38	447.	525.
6.000	.382	.320	1.55	253.10	4.25	-.83	237.07	9.07	-.42	449.	525.
7.000	.207	.182	1.52	245.56	4.32	-.81	230.64	9.44	-.56	431.	524.
8.000	.105	.088	1.75	237.96	4.13	-.57	225.11	8.07	-.55	376.	524.
9.000	.048	.044	1.73	230.44	3.91	.19	218.21	7.36	.07	148.	523.
10.000	.018	.013	1.47	223.56	4.01	.75	211.29	5.66	-.21	111.	522.
11.000	.010	.006	1.01	218.53	4.82	.89	207.84	4.27	-.12	66.	519.
12.000	.008	.004	1.13	216.01	5.91	.25	206.07	3.93	-.07	58.	517.
13.000	.007	.003	.92	215.74	4.88	-.44	205.50	3.13	.03	37.	516.
14.000	.006	.003	.92	214.44	3.61	-.37	204.50	3.46	.08	14.	514.
15.000	99.999	99.999	999.99	212.22	3.38	.03	999.99	99.99	999.99	5.	512.
16.000	99.999	99.999	999.99	210.10	3.64	-.06	999.99	99.99	999.99	0.	510.
17.000	99.999	99.999	999.99	209.03	3.62	-.27	999.99	99.99	999.99	0.	473.
18.000	99.999	99.999	999.99	208.97	3.40	-.24	999.99	99.99	999.99	0.	463.
19.000	99.999	99.999	999.99	209.97	3.12	.02	999.99	99.99	999.99	0.	453.
20.000	99.999	99.999	999.99	211.28	2.90	.09	999.99	99.99	999.99	0.	449.
21.000	99.999	99.999	999.99	212.62	2.87	.10	999.99	99.99	999.99	0.	437.
22.000	99.999	99.999	999.99	213.88	2.91	.11	999.99	99.99	999.99	0.	430.
23.000	99.999	99.999	999.99	215.08	2.96	.07	999.99	99.99	999.99	0.	421.
24.000	99.999	99.999	999.99	216.36	2.99	.07	999.99	99.99	999.99	0.	408.
25.000	99.999	99.999	999.99	217.81	3.00	.00	999.99	99.99	999.99	0.	387.
26.000	99.999	99.999	999.99	219.38	2.92	-.17	999.99	99.99	999.99	0.	366.
27.000	99.999	99.999	999.99	220.85	2.95	-.29	999.99	99.99	999.99	0.	324.
28.000	99.999	99.999	999.99	222.42	3.19	-.43	999.99	99.99	999.99	0.	315.
29.000	99.999	99.999	999.99	224.19	3.12	-.28	999.99	99.99	999.99	0.	250.
30.000	99.999	99.999	999.99	226.21	3.43	-.14	999.99	99.99	999.99	0.	244.

TABLE III-3. MOISTURE RELATED STATISTICAL PARAMETERS

MARCH

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	10.391	3.119	-.26	286.35	4.48	-.18	279.98	5.07	-1.10	549.	549.
.004	10.496	3.023	-.34	286.30	4.40	-.10	280.18	4.90	-1.19	627.	628.
1.000	4.859	2.549	.50	283.55	5.28	.40	268.21	7.76	-.47	586.	628.
2.000	2.540	1.793	1.28	278.89	5.59	-.15	258.84	9.30	-.40	549.	628.
3.000	1.484	1.138	1.54	273.29	5.42	-.42	252.09	9.50	-.47	536.	628.
4.000	.879	.719	1.74	267.12	5.20	-.63	245.98	9.34	-.37	532.	627.
5.000	.532	.463	1.98	260.31	5.24	-.74	240.58	8.89	-.20	547.	626.
6.000	.311	.286	2.09	252.96	5.16	-.71	234.89	8.97	-.31	550.	624.
7.000	.180	.169	2.06	245.43	4.90	-.52	229.50	8.76	-.27	538.	624.
8.000	.099	.085	1.89	237.85	4.48	-.25	224.78	7.50	-.27	429.	625.
9.000	.053	.043	1.74	230.55	3.85	.06	219.89	6.18	.32	180.	623.
10.000	.020	.016	4.52	224.00	3.66	.46	212.61	4.62	.47	129.	620.
11.000	.011	.007	3.83	219.05	4.17	.78	208.37	3.80	.20	74.	618.
12.000	.007	.004	.84	216.07	5.55	.24	205.27	3.89	-.40	70.	616.
13.000	.006	.004	1.06	215.45	5.29	-.36	204.34	4.23	.11	45.	615.
14.000	.005	.003	1.22	214.50	3.98	-.46	203.07	3.81	.43	26.	614.
15.000	.004	.003	.77	212.53	3.70	-.18	201.59	4.48	.05	9.	612.
16.000	99.999	99.999	999.99	210.97	3.62	-.21	999.99	99.99	999.99	0.	607.
17.000	99.999	99.999	999.99	210.48	3.30	-.28	999.99	99.99	999.99	0.	552.
18.000	99.999	99.999	999.99	210.66	3.06	-.41	999.99	99.99	999.99	0.	546.
19.000	99.999	99.999	999.99	211.39	2.77	-.47	999.99	99.99	999.99	0.	544.
20.000	99.999	99.999	999.99	212.46	2.83	-.33	999.99	99.99	999.99	0.	539.
21.000	99.999	99.999	999.99	213.78	2.84	-.33	999.99	99.99	999.99	0.	526.
22.000	99.999	99.999	999.99	215.28	2.76	-.13	999.99	99.99	999.99	0.	511.
23.000	99.999	99.999	999.99	216.73	2.70	.10	999.99	99.99	999.99	0.	493.
24.000	99.999	99.999	999.99	218.24	2.71	.32	999.99	99.99	999.99	0.	472.
25.000	99.999	99.999	999.99	219.77	2.71	.44	999.99	99.99	999.99	0.	453.
26.000	99.999	99.999	999.99	221.35	2.91	.61	999.99	99.99	999.99	0.	429.
27.000	99.999	99.999	999.99	222.94	3.20	.83	999.99	99.99	999.99	0.	379.
28.000	99.999	99.999	999.99	224.83	3.72	.93	999.99	99.99	999.99	0.	362.
29.000	99.999	99.999	999.99	226.62	4.04	1.06	999.99	99.99	999.99	0.	270.
30.000	99.999	99.999	999.99	228.68	4.38	.74	999.93	99.99	999.99	0.	257.

TABLE III-4. MOISTURE RELATED STATISTICAL PARAMETERS

APRIL

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	11.034	2.432	-.32	287.26	4.18	-.14	281.21	3.58	-1.10	498.	498.
.004	11.075	2.379	-.37	287.05	4.08	-.07	281.28	3.50	-1.14	604.	604.
1.000	4.995	2.378	.27	284.26	5.09	.28	268.69	7.88	-1.20	565.	603.
2.000	2.357	1.561	1.01	279.48	5.12	-.30	258.02	9.33	-.70	498.	603.
3.000	1.367	.994	1.41	274.14	5.01	-.78	251.28	9.36	-.64	470.	603.
4.000	.841	.657	1.85	268.21	4.92	-.99	245.65	9.28	-.58	467.	603.
5.000	.526	.460	2.20	261.65	4.67	-1.04	240.40	9.12	-.36	475.	603.
6.000	.312	.289	2.36	254.59	4.41	-1.20	234.96	8.93	-.30	480.	602.
7.000	.183	.176	2.46	247.08	4.20	-1.05	229.95	8.19	-.05	477.	602.
8.000	.093	.085	2.21	239.38	3.75	-.65	224.03	7.56	-.14	447.	600.
9.000	.049	.044	2.08	231.83	3.31	-.29	218.98	6.63	.04	179.	600.
10.000	.019	.015	2.58	224.76	2.85	.24	212.16	4.89	.55	134.	598.
11.000	.010	.007	3.14	218.94	3.22	.87	207.88	4.24	.25	87.	595.
12.000	.007	.005	1.99	214.93	4.65	.61	205.17	4.41	.17	77.	592.
13.000	.006	.004	1.95	214.55	4.91	-.09	204.00	4.90	-.37	59.	590.
14.000	.004	.002	.00	214.46	3.89	-.55	201.93	4.82	-1.19	27.	588.
15.000	.003	.002	.53	213.39	3.38	-.20	199.17	5.13	.03	10.	586.
16.000	99.999	99.999	999.99	212.23	3.41	-.09	999.99	99.99	999.99	0.	580.
17.000	99.999	99.999	999.99	212.08	3.33	-.19	999.99	99.99	999.99	0.	531.
18.000	99.999	99.999	999.99	212.33	3.10	-.33	999.99	99.99	999.99	0.	530.
19.000	99.999	99.999	999.99	213.08	2.64	-.09	999.99	99.99	999.99	0.	526.
20.000	99.999	99.999	999.99	213.86	2.59	.26	999.99	99.99	999.99	0.	518.
21.000	99.999	99.999	999.99	215.19	2.60	.26	999.99	99.99	999.99	0.	511.
22.000	99.999	99.999	999.99	216.76	2.67	.24	999.99	99.99	999.99	0.	508.
23.000	99.999	99.999	999.99	218.28	2.55	.34	999.99	99.99	999.99	0.	492.
24.000	99.999	99.999	999.99	219.79	2.61	.35	999.99	99.99	999.99	0.	483.
25.000	99.999	99.999	999.99	221.31	2.86	.51	999.99	99.99	999.99	0.	471.
26.000	99.999	99.999	999.99	223.01	2.95	.48	999.99	99.99	999.99	0.	452.
27.000	99.999	99.999	999.99	224.84	3.05	.41	999.99	99.99	999.99	0.	404.
28.000	99.999	99.999	999.99	226.73	3.15	.34	999.99	99.99	999.99	0.	391.
29.000	99.999	99.999	999.99	228.58	3.23	.23	999.99	99.99	999.99	0.	319.
30.000	99.999	99.999	999.99	230.74	3.43	.18	999.99	99.99	999.99	0.	309.

TABLE III-5. MOISTURE RELATED STATISTICAL PARAMETERS

MAY

STATION = 723910 Z	VAPOR P MEAN	POINT MUGU NAS S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	13.164	2.120	-.43	287.13	3.50	.08	284.01	2.61	-1.19	493.	493.
.004	13.207	2.060	-.47	286.03	3.39	.07	284.07	2.53	-1.20	602.	602.
1.000	6.446	3.044	-.15	287.38	5.57	.41	271.70	9.56	-1.73	558.	602.
2.000	2.796	1.841	.87	284.48	5.22	-.52	259.79	10.28	-.88	493.	602.
3.000	1.727	1.272	1.16	278.56	4.60	-.78	253.46	10.64	-.75	481.	602.
4.000	1.019	.789	1.53	272.27	4.39	-.93	247.51	9.95	-.68	476.	602.
5.000	.619	.508	1.58	265.51	4.26	-.81	241.90	9.83	-.58	464.	602.
6.000	.343	.284	1.89	258.28	4.31	-.84	236.08	9.00	-.57	470.	602.
7.000	.190	.158	2.15	250.68	4.30	-.83	230.58	8.35	-.59	469.	602.
8.000	.098	.078	2.08	242.90	4.17	-.66	224.84	7.56	-.66	445.	602.
9.000	.050	.036	1.83	235.17	3.69	-.18	219.51	6.37	-.58	241.	601.
10.000	.023	.014	1.45	227.54	3.03	-.13	214.03	4.41	.15	117.	600.
11.000	.011	.005	.85	221.01	2.84	.30	208.61	3.36	-.03	70.	600.
12.000	.006	.002	.76	216.00	3.40	.88	204.22	2.90	-.08	69.	598.
13.000	.005	.002	.25	214.06	4.03	.32	203.64	3.66	-.93	45.	596.
14.000	.004	.002	.09	213.85	3.61	.06	202.30	3.35	-1.10	20.	594.
15.000	.004	.001	-.48	212.85	3.34	.03	201.74	3.10	-1.63	16.	592.
16.000	99.999	99.999	999.99	211.93	3.38	-.14	999.99	99.99	999.99	0.	590.
17.000	99.999	99.999	999.99	211.58	3.36	-.45	999.99	99.99	999.99	0.	548.
18.000	99.999	99.999	999.99	211.91	3.07	-.26	999.99	99.99	999.99	0.	547.
19.000	99.999	99.999	999.99	213.04	2.47	-.14	999.99	99.99	999.99	0.	545.
20.000	99.999	99.999	999.99	214.36	2.18	-.01	999.99	99.99	999.99	0.	540.
21.000	99.999	99.999	999.99	215.90	2.07	.05	999.99	99.99	999.99	0.	536.
22.000	99.999	99.999	999.99	217.75	2.05	.12	999.99	99.99	999.99	0.	529.
23.000	99.999	99.999	999.99	219.61	1.90	.13	999.99	99.99	999.99	0.	516.
24.000	99.999	99.999	999.99	221.25	1.98	.11	999.99	99.99	999.99	0.	503.
25.000	99.999	99.999	999.99	223.07	1.97	.08	999.99	99.99	999.99	0.	487.
26.000	99.999	99.999	999.99	224.99	2.01	.21	999.99	99.99	999.99	0.	458.
27.000	99.999	99.999	999.99	226.92	2.12	.27	999.99	99.99	999.99	0.	417.
28.000	99.999	99.999	999.99	228.70	2.10	.22	999.99	99.99	999.99	0.	397.
29.000	99.999	99.999	999.99	230.52	2.13	.23	999.99	99.99	999.99	0.	309.
30.000	99.999	99.999	999.99	232.47	2.05	-.05	999.99	99.99	999.99	0.	293.

TABLE III-6. MOISTURE RELATED STATISTICAL PARAMETERS

JUNE

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	15.102	1.809	-.28	291.04	3.05	-.22	286.18	1.90	-.72	469.	469.
.004	15.110	1.808	-.33	290.89	3.06	-.06	286.19	1.90	-.71	620.	620.
1.000	7.071	3.718	.15	292.47	6.43	-.11	272.54	10.46	-1.49	535.	620.
2.000	3.565	2.349	.88	290.03	4.98	-.58	262.63	11.02	-.97	469.	619.
3.000	2.440	1.765	.96	283.89	4.14	-.55	257.50	11.20	-.82	449.	619.
4.000	1.560	1.198	1.09	277.33	3.79	-.57	252.00	10.95	-.72	448.	619.
5.000	.954	.845	1.68	270.67	3.72	-.62	245.91	11.08	-.54	438.	618.
6.000	.545	.511	2.22	263.67	3.77	-.70	240.13	10.16	-.44	439.	618.
7.000	.279	.245	2.17	256.31	3.82	-.63	233.81	9.16	-.50	444.	616.
8.000	.151	.128	1.93	248.74	3.89	-.48	228.33	8.32	-.51	433.	616.
9.000	.076	.065	2.09	240.98	3.92	-.29	222.33	7.73	-.55	399.	615.
10.000	.038	.033	2.52	233.26	3.81	.03	217.00	6.61	-.40	155.	614.
11.000	.017	.010	1.32	225.80	3.19	-.02	211.66	4.36	-.06	86.	611.
12.000	.008	.004	.90	219.80	3.12	-.05	206.57	3.55	-.29	85.	611.
13.000	.005	.002	.82	215.44	3.20	.24	203.15	3.28	-.37	52.	609.
14.000	.004	.002	1.30	212.46	3.46	.18	200.73	4.50	-.31	28.	608.
15.000	.003	.002	.69	210.23	3.57	.02	199.85	5.21	-.57	15.	606.
16.000	99.999	99.999	999.99	208.81	3.63	.10	999.99	99.99	999.99	0.	607.
17.000	99.999	99.999	999.99	208.46	3.44	.20	999.99	99.99	999.99	0.	560.
18.000	99.999	99.999	999.99	209.71	2.96	.19	999.99	99.99	999.99	0.	557.
19.000	99.999	99.999	999.99	212.28	2.22	.34	999.99	99.99	999.99	0.	555.
20.000	99.999	99.999	999.99	214.56	1.80	.23	999.99	99.99	999.99	0.	651.
21.000	99.999	99.999	999.99	216.69	1.61	.12	999.99	99.99	999.99	0.	543.
22.000	99.999	99.999	999.99	218.67	1.46	.22	999.99	99.99	999.99	0.	536.
23.000	99.999	99.999	999.99	220.56	1.46	.31	999.99	99.99	999.99	0.	526.
24.000	99.999	99.999	999.99	222.40	1.48	.41	999.99	99.99	999.99	0.	520.
25.000	99.999	99.999	999.99	224.13	1.51	.26	999.99	99.99	999.99	0.	503.
26.000	99.999	99.999	999.99	225.88	1.59	.08	999.99	99.99	999.99	0.	480.
27.000	99.999	99.999	999.99	227.72	1.75	.26	999.99	99.99	999.99	0.	447.
28.000	99.999	99.999	999.99	229.57	1.76	.14	999.99	99.99	999.99	0.	426.
29.000	99.999	99.999	999.99	231.37	1.94	.11	999.99	99.99	999.99	0.	374.
30.000	99.999	99.999	999.99	233.18	1.87	-.06	999.99	99.99	999.99	0.	351.

TABLE III-7. MOISTURE RELATED STATISTICAL PARAMETERS

JULY

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	16.888	2.075	-.15	292.88	3.17	-.09	287.90	1.96	-.57	430.	430.
.004	16.631	2.124	-.19	292.43	3.16	.08	287.65	2.04	-.66	572.	573.
1.000	6.564	3.785	.36	296.93	4.09	-.43	271.02	11.34	-1.33	466.	574.
2.000	4.689	3.331	.58	293.62	2.92	-.02	265.04	13.31	-.93	431.	572.
3.000	3.706	2.606	.48	286.96	2.36	.26	262.03	13.10	-1.00	424.	572.
4.000	2.545	1.828	.57	279.79	2.12	-.01	257.49	12.31	-.91	428.	572.
5.000	1.539	1.200	.76	272.70	2.24	-.31	251.11	12.25	-.78	427.	571.
6.000	.821	.724	1.12	265.94	2.40	-.23	243.55	12.17	-.57	390.	571.
7.000	.413	.382	1.29	259.12	2.54	-.19	236.36	11.41	-.47	388.	570.
8.000	.213	.194	1.44	252.00	2.63	-.19	230.39	10.31	-.51	378.	567.
9.000	.106	.094	1.37	244.64	2.84	-.16	224.27	9.45	-.54	365.	567.
10.000	.045	.041	1.53	237.15	2.97	-.06	217.23	8.80	-.57	200.	566.
11.000	.028	.017	1.05	229.57	2.64	.18	215.51	4.94	-.31	66.	566.
12.000	.012	.005	.65	222.70	2.33	-.20	209.63	3.30	-.58	64.	565.
13.000	.005	.002	.15	216.40	2.32	.12	203.79	3.20	-.73	49.	564.
14.000	.002	.001	.27	210.80	2.40	.49	198.33	3.74	-.97	20.	563.
15.000	99.999	99.999	999.99	206.83	2.65	.46	999.99	99.99	999.99	5.	560.
16.000	99.999	99.999	999.99	205.48	2.58	.37	999.99	99.99	999.99	0.	556.
17.000	99.999	99.999	999.99	206.35	2.31	.04	999.99	99.99	999.99	0.	513.
18.000	99.999	99.999	999.99	208.87	2.19	.09	999.99	99.99	999.99	0.	512.
19.000	99.999	99.999	999.99	211.92	1.86	-.17	999.99	99.99	999.99	0.	506.
20.000	99.999	99.999	999.99	214.48	1.67	-.57	999.99	99.99	999.99	0.	501.
21.000	99.999	99.999	999.99	216.84	1.55	-.47	999.99	99.99	999.99	0.	494.
22.000	99.999	99.999	999.99	218.68	1.41	-.52	999.99	99.99	999.99	0.	482.
23.000	99.999	99.999	999.99	220.40	1.41	-.06	999.99	99.99	999.99	0.	466.
24.000	99.999	99.999	999.99	222.21	1.43	.11	999.99	99.99	999.99	0.	459.
25.000	99.999	99.999	999.99	223.96	1.54	-.12	999.99	99.99	999.99	0.	447.
26.000	99.999	99.999	999.99	225.74	1.62	-.15	999.99	99.99	999.99	0.	408.
27.000	99.999	99.999	999.99	227.51	1.80	-.18	999.99	99.99	999.99	0.	386.
28.000	99.999	99.999	999.99	229.06	1.74	-.34	999.99	99.99	999.99	0.	340.
29.000	99.999	99.999	999.99	230.70	1.87	-.34	999.99	99.99	999.99	0.	301.
30.000	99.999	99.999	999.99	232.36	1.81	-.17	999.99	99.99	999.99	0.	256.

TABLE III-8. MOISTURE RELATED STATISTICAL PARAMETERS

AUGUST

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	17.767	2.247	-.06	293.88	3.14	-.17	288.68	2.02	-.42	516.	516.
.004	17.751	2.218	-.01	293.73	3.11	-.09	288.67	1.98	-.35	616.	616.
1.000	7.417	4.484	.32	296.75	4.41	-.55	272.17	12.61	-1.35	635.	616.
2.000	4.632	3.411	.68	293.09	3.66	-.58	264.48	13.94	-.90	516.	616.
3.000	3.514	2.591	.58	286.41	3.00	-.47	260.87	13.78	-.93	523.	616.
4.000	2.307	1.731	.61	279.43	2.52	-.33	255.71	13.18	-.88	513.	616.
5.000	1.378	1.162	.89	272.63	2.39	-.10	249.06	13.19	-.67	500.	616.
6.000	.727	.699	1.54	265.86	2.49	-.05	241.71	12.60	-.46	479.	616.
7.000	.363	.382	2.29	259.07	2.63	.03	234.70	11.65	-.39	466.	615.
8.000	.191	.190	2.39	252.00	2.86	-.09	229.01	10.67	-.53	456.	614.
9.000	.103	.100	2.16	244.52	3.16	-.18	223.70	10.02	-.60	434.	613.
10.000	.051	.046	1.60	237.03	3.31	-.05	217.91	9.47	-.69	278.	611.
11.000	.029	.016	1.60	229.49	2.97	-.05	215.79	4.76	-.78	121.	610.
12.000	.013	.007	1.86	222.76	2.40	-.11	210.24	3.52	.33	117.	609.
13.000	.006	.003	1.65	216.68	2.09	.06	204.51	3.67	.02	94.	608.
14.000	.004	.002	.93	211.33	2.48	.47	200.73	4.19	-.08	34.	605.
15.000	.002	.001	.74	207.37	3.18	.80	195.50	3.70	-.29	8.	603.
16.000	99.999	99.999	999.99	205.84	3.38	.79	999.99	99.99	999.99	0.	601.
17.000	99.999	99.999	999.99	206.50	3.01	.47	999.99	99.99	999.99	0.	561.
18.000	99.999	99.999	999.99	209.18	2.66	.26	999.99	99.99	999.99	0.	560.
19.000	99.999	99.999	999.99	212.15	2.13	.22	999.99	99.99	999.99	0.	554.
20.000	99.999	99.999	999.99	214.63	1.79	.34	999.99	99.99	999.99	0.	544.
21.000	99.999	99.999	999.99	216.76	1.60	.39	999.99	99.99	999.99	0.	538.
22.000	99.999	99.999	999.99	218.47	1.47	.24	999.99	99.99	999.99	0.	533.
23.000	99.999	99.999	999.99	220.18	1.42	.35	999.99	99.99	999.99	0.	515.
24.000	99.999	99.999	999.99	221.84	1.48	.27	999.99	99.99	999.99	0.	512.
25.000	99.999	99.999	999.99	223.57	1.57	.10	999.99	99.99	999.99	0.	493.
26.000	99.999	99.999	999.99	225.34	1.74	.09	999.99	99.99	999.99	0.	464.
27.000	99.999	99.999	999.99	227.01	1.78	.05	999.99	99.99	999.99	0.	447.
28.000	99.999	99.999	999.99	228.52	1.77	-.07	999.99	99.99	999.99	0.	398.
29.000	99.999	99.999	999.99	230.11	2.02	-.04	999.99	99.99	999.99	0.	355.
30.000	99.999	99.999	999.99	231.53	1.95	-.18	999.99	99.99	999.99	0.	299.

TABLE III-9. MOISTURE RELATED STATISTICAL PARAMETERS

SEPTEMBER

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	16.849	3.241	-.98	293.96	3.64	.20	287.65	3.54	-2.00	437.	437.
.004	16.518	3.310	-.90	293.52	3.75	.08	287.32	3.66	-1.88	523.	523.
1.000	8.007	4.302	.15	294.70	5.27	-.10	274.13	10.87	-1.43	454.	523.
2.000	4.749	3.154	.58	290.19	3.94	-.37	265.88	12.32	-1.10	437.	523.
3.000	3.027	2.194	.69	283.69	3.31	-.36	259.44	12.94	-1.02	422.	523.
4.000	1.813	1.484	1.12	277.35	3.04	-.20	252.93	12.44	-.71	407.	523.
5.000	.981	.882	1.70	270.98	2.91	-.17	245.83	11.83	-.63	400.	523.
6.000	.531	.545	2.67	264.34	2.96	-.23	238.98	11.48	-.49	394.	523.
7.000	.297	.309	2.91	257.13	2.94	-.24	233.34	10.74	-.48	393.	519.
8.000	.169	.177	2.72	249.61	3.06	-.29	228.06	10.18	-.47	396.	519.
9.000	.083	.080	2.44	241.80	3.19	-.16	222.16	9.39	-.64	374.	518.
10.000	.042	.031	1.58	234.13	3.28	.15	217.60	7.64	-.90	176.	518.
11.000	.022	.011	.31	227.19	3.00	-.05	213.75	4.49	-.75	101.	517.
12.000	.011	.005	.73	221.42	2.82	-.42	208.59	3.65	-.45	100.	517.
13.000	.006	.002	.50	216.33	2.76	-.50	204.38	3.27	-.79	80.	515.
14.000	.003	.001	.84	211.88	2.72	.26	200.32	2.86	-.80	41.	511.
15.000	.002	.001	-.28	208.38	3.02	.41	196.66	3.40	-.87	7.	509.
16.000	99.999	99.999	999.99	206.75	3.21	.30	999.99	99.99	999.99	0.	507.
17.000	99.999	99.999	999.99	206.88	3.11	.26	999.99	99.99	999.99	0.	493.
18.000	99.999	99.999	999.99	208.59	2.73	.22	999.99	99.99	999.99	0.	488.
19.000	99.999	99.999	999.99	211.41	2.37	.20	999.99	99.99	999.99	0.	484.
20.000	99.999	99.999	999.99	213.90	2.13	.16	999.99	99.99	999.99	0.	479.
21.000	99.999	99.999	999.99	215.93	2.07	-.12	999.99	99.99	999.99	0.	473.
22.000	99.999	99.999	999.99	217.76	1.94	.12	999.99	99.99	999.99	0.	468.
23.000	99.999	99.999	999.99	219.65	1.83	.22	999.99	99.99	999.99	0.	451.
24.000	99.999	99.999	999.99	221.46	1.83	-.06	999.99	99.99	999.99	0.	447.
25.000	99.999	99.999	999.99	223.14	1.85	-.09	999.99	99.99	999.99	0.	434.
26.000	99.999	99.999	999.99	224.78	1.92	-.11	999.99	99.99	999.99	0.	400.
27.000	99.999	99.999	999.99	226.31	2.02	-.11	999.99	99.99	999.99	0.	372.
28.000	99.999	99.999	999.99	227.73	2.03	-.05	999.99	99.99	999.99	0.	358.
29.000	99.999	99.999	999.99	229.13	2.29	.06	999.99	99.99	999.99	0.	319.
30.000	99.999	99.999	999.99	230.39	2.16	-.25	999.99	99.99	999.99	0.	300.

TABLE III-10. MOISTURE RELATED STATISTICAL PARAMETERS

OCTOBER

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	13.899	4.250	-.70	291.88	4.58	.01	284.17	5.81	-1.49	478.	478.
.004	13.739	4.167	-.69	291.53	4.64	.06	284.01	5.73	-1.48	573.	574.
1.000	6.199	3.505	.34	291.28	5.68	.05	270.71	10.05	-1.14	504.	573.
2.000	3.588	2.396	.93	286.36	4.93	-.44	262.98	10.35	-.87	476.	573.
3.000	2.277	1.594	1.17	280.48	4.24	-.46	257.08	10.52	-1.00	459.	573.
4.000	1.362	.962	1.06	274.51	3.97	-.43	251.05	9.90	-.82	456.	572.
5.000	.794	.603	1.41	268.02	3.88	-.53	244.88	9.66	-.77	453.	572.
6.000	.484	.360	1.62	260.99	3.75	-.64	239.93	8.86	-.81	462.	572.
7.000	.271	.205	1.61	253.48	3.67	-.80	234.18	8.31	-.73	472.	571.
8.000	.158	.127	1.49	245.70	3.63	-.78	228.86	8.14	-.52	469.	571.
9.000	.080	.061	1.58	238.02	3.23	-.51	223.23	7.16	-.67	365.	570.
10.000	.039	.023	1.43	230.58	2.88	.12	218.10	5.15	-.56	170.	569.
11.000	.018	.010	1.65	224.05	3.05	.86	212.32	4.31	-.16	136.	567.
12.000	.009	.005	1.54	218.72	3.53	.64	207.34	3.93	-.06	136.	565.
13.000	.005	.003	1.94	214.60	3.46	.53	203.50	3.96	.14	92.	563.
14.000	.003	.002	2.23	211.47	3.16	.32	199.42	3.90	.36	41.	559.
15.000	.003	.002	.98	208.85	3.13	.21	197.82	5.15	-.06	10.	556.
16.000	99.999	99.999	999.99	207.14	3.11	.14	999.99	99.99	999.99	0.	547.
17.000	99.999	99.999	999.99	206.79	3.10	-.03	999.99	99.99	999.99	0.	499.
18.000	99.999	99.999	999.99	207.96	2.86	-.10	999.99	99.99	999.99	0.	493.
19.000	99.999	99.999	999.99	210.15	2.53	.04	999.99	99.99	999.99	0.	489.
20.000	99.999	99.999	999.99	212.32	2.29	.10	999.99	99.99	999.99	0.	487.
21.000	99.999	99.999	999.99	214.28	2.21	-.16	999.99	99.99	999.99	0.	482.
22.000	99.999	99.999	999.99	216.18	2.06	-.21	999.99	99.99	999.99	0.	479.
23.000	99.999	99.999	999.99	217.95	2.09	-.24	999.99	99.99	999.99	0.	469.
24.000	99.999	99.999	999.99	219.66	2.11	-.27	999.99	99.99	999.99	0.	462.
25.000	99.999	99.999	999.99	221.29	2.24	-.36	999.99	99.99	999.99	0.	447.
26.000	99.999	99.999	999.99	222.71	2.34	-.34	999.99	99.99	999.99	0.	423.
27.000	99.999	99.999	999.99	224.02	2.51	-.27	999.99	99.99	999.99	0.	388.
28.000	99.999	99.999	999.99	225.29	2.70	-.37	999.99	99.99	999.99	0.	379.
29.000	99.999	99.999	999.99	226.57	2.83	-.22	999.99	99.99	999.99	0.	315.
30.000	99.999	99.999	999.99	227.86	2.86	-.29	999.99	99.99	999.99	0.	307.

TABLE III-11. MOISTURE RELATED STATISTICAL PARAMETERS

NOVEMBER

STATION = 72381C POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	10.461	4.281	.05	289.06	5.57	.12	279.48	6.94	-.75	474.	474.
.004	10.501	4.187	.03	288.80	5.53	.17	279.60	6.76	-.78	539.	539.
1.000	5.133	2.964	.79	287.39	5.15	.03	268.52	8.88	-.87	511.	540.
2.000	3.079	2.355	1.33	282.45	5.26	-.50	260.63	10.53	-.49	474.	540.
3.000	1.951	1.521	1.65	277.24	5.01	-.83	255.12	10.13	-.63	459.	540.
4.000	1.192	.921	1.81	271.35	4.88	-.90	249.48	9.69	-.71	449.	540.
5.000	.736	.567	1.80	264.78	4.80	-.89	244.23	9.34	-.87	447.	540.
6.000	.465	.353	1.44	257.78	4.69	-.81	239.24	9.41	-.90	459.	540.
7.000	.280	.222	1.36	250.41	4.53	-.91	234.04	9.09	-.75	461.	536.
8.000	.155	.123	1.57	242.83	4.24	-.72	228.77	8.09	-.68	443.	536.
9.000	.081	.058	1.42	235.33	3.69	-.34	223.51	6.80	-.57	297.	535.
10.000	.033	.021	1.95	228.10	3.37	.00	216.55	5.22	-.23	146.	532.
11.000	.014	.008	1.48	221.64	3.39	.46	210.37	4.24	-.35	99.	523.
12.000	.007	.003	.46	216.30	3.93	.47	205.81	3.65	-.46	96.	522.
13.000	.004	.002	.82	212.86	4.18	.12	201.94	3.70	-.63	61.	519.
14.000	.002	.002	1.29	210.73	3.62	.17	198.11	4.09	.15	15.	517.
15.000	.002	.001	1.37	208.71	3.48	.14	196.70	3.57	.54	10.	512.
16.000	99.999	99.999	999.99	207.39	3.57	.20	999.99	99.99	999.99	0.	509.
17.000	99.999	99.999	999.99	206.90	3.63	.19	999.99	99.99	999.99	0.	484.
18.000	99.999	99.999	999.99	207.52	3.39	.09	999.99	99.99	999.99	0.	458.
19.000	99.999	99.999	999.99	209.01	2.91	.06	999.99	99.99	999.99	0.	454.
20.000	99.999	99.999	999.99	210.60	2.50	.16	999.99	99.99	999.99	0.	444.
21.000	99.999	99.999	999.99	212.07	2.27	.20	999.99	99.99	999.99	0.	435.
22.000	99.999	99.999	999.99	213.68	2.26	.17	999.99	99.99	999.99	0.	427.
23.000	99.999	99.999	999.99	215.35	2.21	-.14	999.99	99.99	999.99	0.	418.
24.000	99.999	99.999	999.99	217.11	2.34	-.25	999.99	99.99	999.99	0.	410.
25.000	99.999	99.999	999.99	218.58	2.58	-.22	999.99	99.99	999.99	0.	401.
26.000	99.999	99.999	999.99	219.81	2.66	-.03	999.99	99.99	999.99	0.	383.
27.000	99.999	99.999	999.99	221.22	2.73	.21	999.99	99.99	999.99	0.	351.
28.000	99.999	99.999	999.99	222.49	2.76	.15	999.99	99.99	999.99	0.	344.
29.000	99.999	99.999	999.99	223.73	2.82	.06	999.99	99.99	999.99	0.	280.
30.000	99.999	99.999	999.99	225.04	2.98	-.10	999.99	99.99	999.99	0.	270.

TABLE III-12. MOISTURE RELATED STATISTICAL PARAMETERS

DECEMBER

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	8.393	3.707	.34	285.82	5.36	.06	276.22	6.91	-.45	585.	585.
.004	8.479	3.719	.30	285.96	5.30	.02	276.37	6.91	-.47	628.	629.
1.000	4.206	2.769	1.40	284.22	5.44	-.21	265.86	8.20	.07	620.	630.
2.000	2.651	1.874	1.57	279.47	5.88	-.67	259.70	8.53	-.15	588.	630.
3.000	1.759	1.261	1.39	274.22	5.77	-1.01	254.48	8.87	-.42	575.	630.
4.000	1.079	.815	1.69	268.29	5.51	-1.17	248.69	8.92	-.58	568.	630.
5.000	.667	.550	1.98	261.72	5.30	-1.14	243.24	8.70	-.33	576.	630.
6.000	.413	.356	2.00	254.80	5.11	-.99	238.06	8.61	-.22	585.	629.
7.000	.240	.198	1.69	247.64	4.70	-.73	232.89	8.01	-.27	580.	629.
8.000	.134	.103	1.41	240.12	4.41	-.50	227.75	7.20	-.22	506.	629.
9.000	.072	.050	1.45	232.60	4.00	-.25	222.72	6.32	-.42	242.	624.
10.000	.030	.018	1.32	225.51	3.68	.18	215.94	4.93	-.11	167.	621.
11.000	.015	.007	.94	219.86	3.73	.65	210.87	3.64	-.11	115.	618.
12.000	.009	.004	1.05	215.94	4.77	.18	206.89	3.78	-.24	111.	612.
13.000	.006	.004	1.13	214.15	4.79	-.24	204.81	3.93	-.11	70.	610.
14.000	.004	.002	.11	212.53	4.09	.00	201.80	3.73	-.36	27.	606.
15.000	.003	.002	.27	210.51	3.95	.07	199.01	4.41	-.13	11.	600.
16.000	99.999	99.999	999.99	208.69	4.04	.02	999.99	99.99	999.99	0.	595.
17.000	99.999	99.999	999.99	207.94	4.28	-.16	999.99	99.99	999.99	0.	544.
18.000	99.999	99.999	999.99	208.28	4.09	-.37	999.99	99.99	999.99	0.	536.
19.000	99.999	99.999	999.99	209.46	3.62	-.37	999.99	99.99	999.99	0.	523.
20.000	99.999	99.999	999.99	210.78	3.03	-.18	999.99	99.99	999.99	0.	512.
21.000	99.999	99.999	999.99	212.34	2.69	-.16	999.99	99.99	999.99	0.	505.
22.000	99.999	99.999	999.99	213.84	2.68	-.16	999.99	99.99	999.99	0.	497.
23.000	99.999	99.999	999.99	215.27	2.62	-.09	999.99	99.99	999.99	0.	487.
24.000	99.999	99.999	999.99	216.69	2.82	-.04	999.99	99.99	999.99	0.	465.
25.000	99.999	99.999	999.99	217.85	2.98	.04	999.99	99.99	999.99	0.	451.
26.000	99.999	99.999	999.99	218.94	3.15	.04	999.99	99.99	999.99	0.	433.
27.000	99.999	99.999	999.99	220.10	3.37	-.01	999.99	99.99	999.99	0.	398.
28.000	99.999	99.999	999.99	221.23	3.64	.09	999.99	99.99	999.99	0.	383.
29.000	99.999	99.999	999.99	222.30	3.55	.11	999.99	99.99	999 99	0.	303.
30.000	99.999	99.999	999.99	223.60	3.68	.07	999.99	99.99	999.99	0.	294.

TABLE III-13. MOISTURE RELATED STATISTICAL PARAMETERS

ANNUAL

STATION = 723910 POINT MUGU NAS

Z	VAPOR P MEAN	S.D. VP	SKEW VP	TV MEAN	TV S.D.	SKEW TV	DEWPT T MEAN	S.D. DPT	SKEW DPT	NOBS T+P	NOBS TV
KM	MB	MB		DEG K	DEG K		DEG K	DEG K			
.000	12.548	4.499	-.22	289.31	5.28	-.24	282.40	6.44	-1.09	5887.	5887.
.004	12.650	4.394	-.27	289.23	5.17	-.23	282.58	6.28	-1.17	7011.	7016.
1.000	5.777	3.485	.70	288.90	7.23	.12	269.67	9.95	-.91	6369.	7016.
2.000	3.301	2.527	1.28	284.68	7.38	-.20	261.31	11.01	-.55	5892.	7012.
3.000	2.203	1.864	1.47	278.84	6.76	-.41	255.78	11.39	-.48	5723.	7012.
4.000	1.376	1.245	1.69	272.55	6.36	-.53	250.06	11.10	-.37	5682.	7008.
5.000	.825	.794	1.98	265.85	6.30	-.55	244.25	10.70	-.29	5685.	7005.
6.000	.467	.463	2.39	258.84	6.38	-.47	238.32	10.19	-.31	5673.	7000.
7.000	.256	.250	2.54	251.52	6.47	-.33	232.53	9.54	-.34	5634.	6986.
8.000	.140	.133	2.53	243.97	6.49	-.15	227.19	8.70	-.34	5208.	6981.
9.000	.078	.071	2.37	236.40	6.32	.06	222.19	8.14	-.40	3401.	6967.
10.000	.035	.031	2.40	229.12	5.99	.22	215.86	7.05	-.25	1895.	6947.
11.000	.017	.012	2.01	222.80	5.34	.16	211.33	5.04	.04	1075.	6917.
12.000	.009	.005	1.68	217.99	5.03	-.20	206.98	4.13	-.12	1033.	6896.
13.000	.006	.003	1.59	215.06	4.22	-.32	203.93	3.83	-.26	716.	6873.
14.000	.004	.002	1.33	212.68	3.74	.13	200.95	4.14	-.29	309.	6844.
15.000	.003	.002	2.95	210.31	4.02	.17	198.91	4.10	.47	114.	6809.
16.000	99.999	99.999	999.99	208.76	4.12	.17	999.99	99.99	999.99	0.	6765.
17.000	99.999	99.999	999.99	208.46	3.91	.09	999.99	99.99	999.99	0.	6254.
18.000	99.999	99.999	999.99	209.40	3.48	-.14	999.99	99.99	999.99	0.	6197.
19.000	99.999	99.999	999.99	211.16	3.06	-.43	999.99	99.99	999.99	0.	6128.
20.000	99.999	99.999	999.99	212.89	2.92	-.48	999.99	99.99	999.99	0.	6052.
21.000	99.999	99.999	999.99	214.63	2.97	-.51	999.99	99.99	999.99	0.	5952.
22.000	99.999	99.999	999.99	216.30	3.03	-.55	999.99	99.99	999.99	0.	5862.
23.000	99.999	99.999	999.99	217.92	3.13	-.56	999.99	99.99	999.99	0.	5701.
24.000	99.999	99.999	999.99	219.55	3.28	-.62	999.99	99.99	999.99	0.	5574.
25.000	99.999	99.999	999.99	221.14	3.46	-.63	999.99	99.99	999.99	0.	5385.
26.000	99.999	99.999	999.99	222.68	3.67	-.58	999.99	99.99	999.99	0.	5092.
27.000	99.999	99.999	999.99	224.30	3.89	-.52	999.99	99.99	999.99	0.	4673.
28.000	99.999	99.999	999.99	225.81	4.07	-.51	999.99	99.99	999.99	0.	4436.
29.000	99.999	99.999	999.99	227.48	4.21	-.44	999.99	99.99	999.99	0.	3671.
30.000	99.999	99.999	999.99	229.05	4.37	-.48	999.99	99.99	999.99	0.	3447.

TABLE IV-1. HYDROSTATIC MODEL ATMOSPHERE

JANUARY

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1019.0000	1242.0000	285.88
.004	.004	1018.5000	1241.0000	285.81
1.000	.999	903.9700	1108.0000	284.11
2.000	1.997	800.8700	999.0000	279.28
3.000	2.995	707.9800	900.4000	273.93
4.000	3.993	624.2700	811.7000	267.93
5.000	4.991	548.8100	732.1000	261.15
6.000	5.988	480.8200	659.4000	254.03
7.000	6.985	419.6600	592.8000	246.60
8.000	7.982	364.7400	531.9000	238.89
9.000	8.978	315.5600	475.6000	231.16
10.000	9.974	271.7400	423.7000	223.98
11.000	10.970	233.0200	371.3000	218.64
12.000	11.965	199.2200	322.4000	215.30
13.000	12.960	170.0700	276.3000	214.44
14.000	13.955	145.0900	236.8000	213.44
15.000	14.949	123.6400	203.8000	211.37
16.000	15.943	105.2100	175.1000	209.35
17.000	16.937	89.4170	149.7000	208.11
18.000	17.931	75.9620	127.1000	208.16
19.000	18.924	64.5650	107.5000	209.29
20.000	19.917	54.9330	90.8600	210.62
21.000	20.909	46.7910	76.8600	212.09
22.000	21.901	39.9000	65.1200	213.46
23.000	22.893	34.0590	55.2400	214.78
24.000	23.885	29.1040	46.9200	216.10
25.000	24.876	24.8950	39.8600	217.56
26.000	25.867	21.3160	33.9600	218.66
27.000	26.858	18.2680	28.9300	219.98
28.000	27.848	15.6720	24.6500	221.50
29.000	28.838	13.4600	21.0100	223.14
30.000	29.828	11.5737	17.9300	224.85
32.000	31.806	8.6007	13.0000	230.35
34.000	33.784	6.4350	9.5150	235.52
36.000	35.760	4.8464	7.0120	240.68
38.000	37.735	3.6732	5.1970	246.15
40.000	39.708	2.8011	3.8830	251.19
42.000	41.681	2.1488	2.9080	257.35
44.000	43.652	1.6588	2.1970	262.97
46.000	45.622	1.2864	1.6820	266.34
48.000	47.590	.9991	1.3090	265.70
50.000	49.558	.7746	1.0270	262.73
52.000	51.524	.5989	.8042	259.32
54.000	53.489	.4618	.6256	257.02
56.000	55.453	.3554	.4847	255.30
58.000	57.415	.2731	.3748	253.67
60.000	59.377	.2094	.2904	251.11
62.000	61.337	.1599	.2269	245.33
64.000	63.295	.1214	.1757	240.59
66.000	65.253	.0916	.1358	234.89
68.000	67.209	.0687	.1048	227.98
70.000	69.165	.0510	.0797	222.88

TABLE IV-2. HYDROSTATIC MODEL ATMOSPHERE

FEBRUARY

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1018.1000	1239.0000	286.42
.004	.004	1017.6000	1239.0000	286.07
1.000	.999	903.2700	1107.0000	284.25
2.000	1.997	800.2200	999.2000	279.01
3.000	2.995	707.3000	900.9000	273.51
4.000	3.993	623.5100	812.8000	267.25
5.000	4.991	547.9500	733.1000	260.39
6.000	5.988	479.8600	660.5000	253.10
7.000	6.985	418.5900	593.8000	245.56
8.000	7.982	363.6000	532.3000	237.96
9.000	8.978	314.4200	475.3000	230.44
10.000	9.974	270.6500	421.7000	223.56
11.000	10.970	232.0500	369.9000	218.53
12.000	11.965	198.4300	320.0000	216.01
13.000	12.960	169.5200	273.7000	215.74
14.000	13.955	144.7400	235.1000	214.44
15.000	14.949	123.4400	202.6000	212.22
16.000	15.943	105.1000	174.3000	210.10
17.000	16.937	89.3780	149.0000	209.03
18.000	17.931	75.9810	126.7000	208.97
19.000	18.924	64.6190	107.2000	209.97
20.000	19.917	55.0070	90.7000	211.28
21.000	20.909	46.8750	76.8000	212.62
22.000	21.901	39.9860	65.1300	213.88
23.000	22.893	34.1420	55.3000	215.08
24.000	23.885	29.1800	46.9800	216.36
25.000	24.876	24.9650	39.9300	217.81
26.000	25.867	21.3830	33.9600	219.38
27.000	26.858	18.3350	28.9200	220.85
28.000	27.848	15.7400	24.6500	222.42
29.000	28.838	13.5270	21.0200	224.19
30.000	29.828	11.6407	17.9300	226.21
32.000	31.806	8.6696	13.0000	232.40
34.000	33.784	6.5046	9.5290	237.98
36.000	35.760	4.9172	7.0090	244.57
38.000	37.735	3.7443	5.2090	250.62
40.000	39.708	2.8688	3.9140	255.53
42.000	41.681	2.2088	2.9610	260.08
44.000	43.652	1.7075	2.2630	263.08
46.000	45.622	1.3227	1.7470	264.01
48.000	47.590	1.0253	1.3550	263.81
50.000	49.558	.7942	1.0540	262.79
52.000	51.524	.6147	.8200	261.31
54.000	53.489	.4751	.6367	260.15
56.000	55.453	.3666	.4966	257.33
58.000	57.415	.2822	.3854	255.31
60.000	59.377	.2169	.2977	254.07
62.000	61.337	.1663	.2322	249.64
64.000	63.295	.1266	.1828	241.53
66.000	65.253	.0957	.1413	236.16
68.000	67.209	.0717	.1103	226.56
70.000	69.165	.0532	.0841	220.49

TABLE IV-3. HYDROSTATIC MODEL ATMOSPHERE

MARCH

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1017.0000	1238.0000	286.35
.004	.004	1016.5000	1237.0000	286.30
1.000	.999	902.2100	1108.0000	283.55
2.000	1.997	799.1500	998.2000	278.89
3.000	2.995	706.2900	900.3000	273.29
4.000	3.993	622.5800	811.9000	267.12
5.000	4.991	547.1000	732.2000	260.31
6.000	5.988	479.0900	659.8000	252.96
7.000	6.985	417.8900	593.1000	245.43
8.000	7.982	362.9700	531.6000	237.85
9.000	8.978	313.8700	474.7000	230.55
10.000	9.974	270.2300	423.3000	224.00
11.000	10.970	231.6000	368.6000	219.05
12.000	11.965	198.2300	319.6000	216.07
13.000	12.960	169.3300	273.8000	215.45
14.000	13.955	144.5700	234.8000	214.50
15.000	14.949	123.3100	202.1000	212.53
16.000	15.943	105.0300	173.4000	210.97
17.000	16.937	89.4040	148.0000	210.48
18.000	17.931	76.0950	125.8000	210.66
19.000	18.924	64.7930	106.8000	211.39
20.000	19.917	55.2100	90.5300	212.46
21.000	20.909	47.0890	76.7300	213.78
22.000	21.901	40.2060	65.0600	215.28
23.000	22.893	34.3690	55.2400	216.73
24.000	23.885	29.4110	46.9500	218.24
25.000	24.876	25.1980	39.9400	219.77
26.000	25.867	21.6120	34.0100	221.35
27.000	26.858	18.5590	29.0000	222.94
28.000	27.848	15.9550	24.7200	224.83
29.000	28.838	13.7350	21.1100	226.62
30.000	29.828	11.8388	18.0400	228.68
32.000	31.806	8.8411	13.1300	234.18
34.000	33.784	6.6435	9.6780	238.74
36.000	35.760	5.0237	7.1500	244.35
38.000	37.735	3.8198	5.3530	248.17
40.000	39.708	2.9199	4.0030	253.65
42.000	41.681	2.2437	3.0230	258.10
44.000	43.652	1.7319	2.2990	262.04
46.000	45.622	1.3413	1.7630	264.53
48.000	47.590	1.0408	1.3630	265.58
50.000	49.558	.8081	1.0570	265.91
52.000	51.524	.6275	.8235	264.97
54.000	53.489	.4866	.6435	262.96
56.000	55.453	.3768	.5005	261.81
58.000	57.415	.2914	.3900	259.80
60.000	59.377	.2247	.3050	256.21
62.000	61.337	.1726	.2388	251.36
64.000	63.295	.1320	.1860	246.63
66.000	65.253	.1003	.1446	241.20
68.000	67.209	.0756	.1131	232.49
70.000	69.165	.0565	.0870	225.78

TABLE IV-4. HYDROSTATIC MODEL ATMOSPHERE

APRIL

STATION = 723910 POINT HUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1016.4000	1233.0000	287.26
.004	.004	1015.9000	1233.0000	287.05
1.000	.999	901.9700	1105.0000	284.26
2.000	1.997	799.1600	996.1000	279.48
3.000	2.995	706.5300	897.8000	274.14
4.000	3.993	623.0700	809.3000	268.21
5.000	4.991	547.8600	729.4000	261.65
6.000	5.988	480.1100	657.0000	254.59
7.000	6.985	419.1600	591.0000	247.08
8.000	7.982	364.4000	530.3000	239.38
9.000	8.978	315.3800	473.9000	231.83
10.000	9.974	271.7100	421.1000	224.76
11.000	10.970	233.0900	370.9000	218.94
12.000	11.965	199.2700	323.0000	214.93
13.000	12.960	170.1000	276.2000	214.55
14.000	13.955	145.1700	235.8000	214.46
15.000	14.949	123.8600	202.2000	213.39
16.000	15.943	105.5900	173.3000	212.23
17.000	16.937	89.9730	147.8000	212.08
18.000	17.931	76.6740	125.8000	212.33
19.000	18.924	65.3690	106.9000	213.08
20.000	19.917	55.7650	90.8400	213.86
21.000	20.909	47.6120	77.0800	215.19
22.000	21.901	40.6960	65.4100	216.76
23.000	22.893	34.8250	55.5800	218.28
24.000	23.885	29.8350	47.2900	219.79
25.000	24.876	25.5080	40.2800	221.31
26.000	25.867	21.9710	34.3200	223.01
27.000	26.858	18.8890	29.2700	224.84
28.000	27.848	16.2600	24.9800	226.73
29.000	28.838	14.0160	21.3600	228.58
30.000	29.828	12.0967	18.2600	230.74
32.000	31.806	9.0503	13.3100	236.47
34.000	33.784	6.8292	9.8080	241.96
36.000	35.760	5.1802	7.3000	246.57
38.000	37.735	3.9495	5.4700	250.87
40.000	39.708	3.0274	4.1070	256.14
42.000	41.681	2.3338	3.0960	261.93
44.000	43.652	1.8090	2.3570	266.73
46.000	45.622	1.4066	1.8220	268.26
48.000	47.590	1.0956	1.4110	269.81
50.000	49.558	.8537	1.1020	269.10
52.000	51.524	.6648	.8615	268.13
54.000	53.489	.5170	.6761	265.68
56.000	55.453	.4012	.5286	263.74
58.000	57.415	.3107	.4141	260.72
60.000	59.377	.2399	.3240	257.23
62.000	61.337	.1843	.2551	251.06
64.000	63.295	.1406	.2009	243.21
66.000	65.253	.1063	.1568	235.67
68.000	67.209	.0797	.1215	227.80
70.000	69.165	.0591	.0941	218.16

TABLE IV-5. HYDROSTATIC MODEL ATMOSPHERE

MAY

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1015.0000	1223.0000	288.13
.004	.004	1014.5000	1223.0000	289.03
1.000	.999	901.6800	1093.0000	287.38
2.000	1.997	800.2800	980.0000	284.48
3.000	2.995	708.9800	886.7000	278.56
4.000	3.993	626.4400	801.5000	272.27
5.000	4.991	551.8700	724.1000	265.51
6.000	5.988	484.5500	653.6000	258.28
7.000	6.985	423.8500	589.0000	250.68
8.000	7.982	369.2300	529.5000	242.90
9.000	8.978	320.2300	474.4000	235.17
10.000	9.974	276.4300	423.7000	227.54
11.000	10.970	237.5700	374.4000	221.01
12.000	11.965	203.3000	327.9000	216.00
13.000	12.960	173.5700	282.5000	214.06
14.000	13.955	148.0800	241.2000	213.85
15.000	14.949	126.2800	206.7000	212.85
16.000	15.943	107.6200	176.9000	211.93
17.000	16.937	91.6770	151.0000	211.58
18.000	17.931	78.1000	128.4000	211.91
19.000	18.924	66.5730	108.9000	213.04
20.000	19.917	56.8020	92.3100	214.36
21.000	20.909	48.5190	78.2900	215.90
22.000	21.901	41.4970	66.3900	217.75
23.000	22.893	35.5400	56.3600	219.61
24.000	23.885	30.4770	47.9900	221.25
25.000	24.876	26.1680	40.8700	223.07
26.000	25.867	22.4980	34.8300	224.99
27.000	26.858	19.3680	29.7300	226.92
28.000	27.848	16.6950	25.4300	228.70
29.000	28.838	14.4080	21.7700	230.52
30.000	29.828	12.4496	18.6600	232.47
32.000	31.806	9.3370	13.6900	237.27
34.000	33.784	7.0443	10.1100	242.36
36.000	35.760	5.3455	7.5340	246.86
38.000	37.735	4.0793	5.6250	252.33
40.000	39.708	3.1324	4.2230	258.03
42.000	41.681	2.4194	3.1890	263.92
44.000	43.652	1.8785	2.4360	269.29
46.000	45.622	1.4635	1.8800	270.68
48.000	47.590	1.1424	1.4610	271.94
50.000	49.558	.8921	1.1420	271.72
52.000	51.524	.6960	.8985	269.48
54.000	53.489	.5419	.7065	266.81
56.000	55.453	.4208	.5550	263.78
58.000	57.415	.3258	.4353	260.39
60.000	59.377	.2514	.3413	256.26
62.000	61.337	.1929	.2685	249.96
64.000	63.295	.1470	.2115	241.78
66.000	65.253	.1109	.1653	233.48
68.000	67.209	.0828	.1293	222.69
70.000	69.165	.0609	.0994	213.01

TABLE IV-6. HYDROSTATIC MODEL ATMOSPHERE

JUNE

STATION = 723810 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1013.5000	1213.0000	291.04
.004	.004	1013.1000	1213.0000	290.89
1.000	.999	901.6300	1074.0000	292.47
2.000	1.997	801.9800	963.3000	290.03
3.000	2.995	712.1200	873.9000	283.89
4.000	3.993	630.6500	792.2000	277.33
5.000	4.991	556.8900	716.8000	270.67
6.000	5.988	490.2200	647.7000	263.67
7.000	6.985	430.0300	584.5000	256.31
8.000	7.982	375.7900	526.3000	248.74
9.000	8.978	327.0200	472.8000	240.98
10.000	9.974	283.3000	423.1000	233.26
11.000	10.970	244.2800	376.9000	225.80
12.000	11.965	209.7100	332.4000	219.80
13.000	12.960	179.3800	290.1000	215.44
14.000	13.955	153.0300	250.9000	212.46
15.000	14.949	130.3100	215.9000	210.23
16.000	15.943	110.8100	184.9000	208.81
17.000	16.937	94.1680	157.4000	208.46
18.000	17.931	80.0580	133.0000	209.71
19.000	18.924	68.1660	111.9000	212.28
20.000	19.917	58.1490	94.4100	214.56
21.000	20.909	49.6680	79.8800	216.69
22.000	21.901	42.5220	67.7400	218.67
23.000	22.893	36.4420	57.5600	220.56
24.000	23.885	31.2740	48.9900	222.40
25.000	24.876	26.8720	41.7700	224.13
26.000	25.867	23.1180	35.6500	225.88
27.000	26.858	19.9130	30.4600	227.72
28.000	27.848	17.1740	26.0600	229.57
29.000	28.838	14.8300	22.3300	231.37
30.000	29.828	12.8205	19.1500	233.18
32.000	31.806	9.6233	14.0300	237.94
34.000	33.784	7.2646	10.3900	242.71
36.000	35.760	5.5154	7.7360	247.39
38.000	37.735	4.2100	5.7910	252.25
40.000	39.708	3.2333	4.3410	258.44
42.000	41.681	2.4981	3.2820	264.09
44.000	43.652	1.9397	2.5100	268.17
46.000	45.622	1.5109	1.9570	270.58
48.000	47.590	1.1791	1.5050	271.04
50.000	49.558	.9210	1.1740	272.24
52.000	51.524	.7190	.9227	270.36
54.000	53.489	.5602	.7259	267.78
56.000	55.453	.4353	.5717	264.20
58.000	57.415	.3372	.4493	260.35
60.000	59.377	.2601	.3524	256.07
62.000	61.337	.1995	.2785	248.53
64.000	63.295	.1518	.2185	240.97
66.000	65.253	.1145	.1697	234.08
68.000	67.209	.0855	.1329	223.08
70.000	69.165	.0630	.1015	215.46

TABLE IV-7. HYDROSTATIC MODEL ATMOSPHERE

JULY

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1014.0000	1206.0000	292.88
.004	.004	1013.5000	1207.0000	292.43
1.000	.999	903.0900	1060.0000	296.93
2.000	1.997	804.5000	954.6000	293.62
3.000	2.995	715.3900	868.5000	286.96
4.000	3.993	634.3000	789.8000	279.79
5.000	4.991	560.6800	716.3000	272.70
6.000	5.988	494.0600	647.2000	265.94
7.000	6.985	433.9500	583.4000	259.12
8.000	7.982	379.8200	525.1000	252.00
9.000	8.978	331.1700	471.6000	244.64
10.000	9.974	287.5600	422.5000	237.15
11.000	10.970	248.5400	377.2000	229.57
12.000	11.965	213.8400	334.5000	222.70
13.000	12.960	183.1700	294.9000	216.40
14.000	13.955	156.2300	258.2000	210.80
15.000	14.949	132.7700	223.6000	206.83
16.000	15.943	112.6000	190.9000	205.48
17.000	16.937	95.4870	161.2000	206.35
18.000	17.931	81.0860	135.2000	208.87
19.000	18.924	69.0090	113.4000	211.92
20.000	19.917	58.8590	95.6000	214.48
21.000	20.909	50.2950	80.8000	216.84
22.000	21.901	43.0450	68.5700	218.68
23.000	22.893	36.8880	58.3000	220.40
24.000	23.885	31.6520	49.6200	222.21
25.000	24.876	27.1940	42.3000	223.96
26.000	25.867	23.3930	36.1000	225.74
27.000	26.858	20.1480	30.8500	227.51
28.000	27.848	17.3720	26.4200	229.06
29.000	28.838	14.9950	22.6400	230.70
30.000	29.828	12.9571	19.4300	232.36
32.000	31.806	9.7136	14.2900	236.70
34.000	33.784	7.3198	10.5800	240.94
36.000	35.760	5.5448	7.8730	245.20
38.000	37.735	4.2222	5.8810	249.96
40.000	39.708	3.2341	4.4040	255.68
42.000	41.691	2.4913	3.3250	260.89
44.000	43.652	1.9280	2.5380	264.50
46.000	45.622	1.4965	1.9530	266.80
48.000	47.590	1.1639	1.5110	268.05
50.000	49.558	.9055	1.1780	267.67
52.000	51.524	.7040	.9218	265.87
54.000	53.489	.5461	.7236	262.69
56.000	55.453	.4222	.5673	259.11
58.000	57.415	.3251	.4457	253.93
60.000	59.377	.2491	.3479	249.24
62.000	61.337	.1896	.2735	241.31
64.000	63.295	.1431	.2125	234.39
66.000	65.253	.1071	.1640	227.33
68.000	67.209	.0794	.1264	218.65
70.000	69.165	.0582	.0952	212.89

TABLE IV-8. HYDROSTATIC MODEL ATMOSPHERE

AUGUST

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1013.6000	1202.0000	293.88
.004	.004	1013.1000	1202.0000	293.73
1.000	.999	902.9500	1060.0000	296.75
2.000	1.997	804.3200	956.0000	293.09
3.000	2.995	715.0200	869.7000	286.41
4.000	3.993	633.8500	790.2000	279.43
5.000	4.991	560.2300	715.9000	272.63
6.000	5.988	493.6400	646.8000	265.86
7.000	6.985	433.5700	583.0000	259.07
8.000	7.982	379.4800	524.6000	252.00
9.000	8.978	330.8600	471.4000	244.52
10.000	9.974	287.2600	422.2000	237.03
11.000	10.970	248.2800	376.9000	229.49
12.000	11.965	213.6200	334.1000	222.76
13.000	12.960	183.0000	294.2000	216.68
14.000	13.955	156.1300	257.4000	211.33
15.000	14.949	132.7400	223.0000	207.37
16.000	15.943	112.6200	190.6000	205.84
17.000	16.937	95.5200	161.1000	206.50
18.000	17.931	81.1280	135.1000	209.18
19.000	18.924	69.0590	113.4000	212.15
20.000	19.917	58.9100	95.6200	214.63
21.000	20.909	50.3400	80.9100	216.76
22.000	21.901	43.0790	68.6900	218.47
23.000	22.893	36.9110	58.4000	220.18
24.000	23.885	31.6660	49.7300	221.84
25.000	24.876	27.1990	42.3800	223.57
26.000	25.867	23.3910	36.1800	225.34
27.000	26.858	20.1400	30.9100	227.01
28.000	27.848	17.3590	26.4600	228.52
29.000	28.838	14.9790	22.6800	230.11
30.000	29.828	12.9375	19.4700	231.53
32.000	31.806	9.6885	14.2500	235.80
34.000	33.784	7.2891	10.5700	239.12
36.000	35.760	5.5081	7.8700	242.78
38.000	37.735	4.1829	5.8620	247.52
40.000	39.708	3.1956	4.3780	253.19
42.000	41.681	2.4549	3.3010	257.99
44.000	43.652	1.8954	2.5030	262.71
46.000	45.622	1.4686	1.9230	264.84
48.000	47.590	1.1394	1.4920	264.91
50.000	49.558	.8841	1.1570	265.12
52.000	51.524	.6859	.9009	264.06
54.000	53.489	.5312	.7049	261.38
56.000	55.453	.4103	.5518	257.89
58.000	57.415	.3158	.4306	254.38
60.000	59.377	.2420	.3366	249.36
62.000	61.337	.1844	.2633	242.91
64.000	63.295	.1394	.2056	235.12
66.000	65.253	.1045	.1579	229.52
68.000	67.209	.0776	.1224	220.00
70.000	69.165	.0570	.0926	213.56

TABLE IV-9. HYDROSTATIC MODEL ATMOSPHERE

SEPTEMBER

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1012.9000	1201.0000	293.96
.004	.004	1012.4000	1202.0000	293.52
1.000	.999	901.9100	1066.0000	294.70
2.000	1.997	802.6100	963.5000	290.19
3.000	2.995	712.6800	875.2000	283.69
4.000	3.993	631.1300	792.7000	277.35
5.000	4.991	557.3600	716.5000	270.98
6.000	5.988	490.7400	646.7000	264.34
7.000	6.985	430.6500	583.5000	257.13
8.000	7.982	376.5000	525.5000	249.61
9.000	8.978	327.8000	472.3000	241.80
10.000	9.974	284.1200	422.5000	234.13
11.000	10.970	245.1700	375.9000	227.19
12.000	11.965	210.6800	331.5000	221.42
13.000	12.960	180.3700	290.5000	216.33
14.000	13.955	153.9000	253.0000	211.88
15.000	14.949	130.9300	218.9000	208.38
16.000	15.943	111.1600	187.3000	206.75
17.000	16.937	94.3340	158.8000	206.88
18.000	17.931	80.1140	133.8000	208.59
19.000	18.924	68.1620	112.3000	211.41
20.000	19.917	58.1120	94.6500	213.90
21.000	20.909	49.6300	80.0700	215.93
22.000	21.901	42.4480	67.9100	217.76
23.000	22.893	36.3550	57.6600	219.65
24.000	23.885	31.1790	49.0500	221.46
25.000	24.876	26.7730	41.8000	223.14
26.000	25.867	23.0170	35.6700	224.78
27.000	26.858	19.8090	30.4900	226.31
28.000	27.848	17.0670	26.1100	227.73
29.000	28.838	14.7180	22.3800	229.13
30.000	29.828	12.7034	19.2100	230.39
32.000	31.806	9.4981	14.0800	234.37
34.000	33.784	7.1306	10.4500	237.02
36.000	35.760	5.3771	7.7410	241.31
38.000	37.735	4.0760	5.7610	245.79
40.000	39.708	3.1073	4.3010	250.97
42.000	41.681	2.3829	3.2230	256.85
44.000	43.652	1.8382	2.4370	262.05
46.000	45.622	1.4235	1.8700	264.49
48.000	47.590	1.1050	1.4410	266.30
50.000	49.558	.8585	1.1190	266.41
52.000	51.524	.6668	.8731	265.30
54.000	53.489	.5173	.6825	263.28
56.000	55.453	.4006	.5320	261.58
58.000	57.415	.3095	.4160	258.48
60.000	59.377	.2382	.3267	253.29
62.000	61.337	.1824	.2554	248.02
64.000	63.295	.1387	.2006	240.13
66.000	65.253	.1046	.1553	233.91
68.000	67.209	.0781	.1209	224.50
70.000	69.165	.0578	.0919	218.33

TABLE IV-10. HYDROSTATIC MODEL ATMOSPHERE

OCTOBER

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1015.4000	1212.0000	291.88
.004	.004	1014.9000	1213.0000	291.53
1.000	.999	903.2000	1080.0000	291.28
2.000	1.997	802.5900	976.4000	286.36
3.000	2.995	711.6000	883.8000	280.48
4.000	3.993	629.3400	798.7000	274.51
5.000	4.991	555.0400	721.4000	268.02
6.000	5.988	487.9600	651.3000	260.99
7.000	6.985	427.4500	587.4000	253.48
8.000	7.982	372.9400	528.8000	245.70
9.000	8.978	323.9800	474.2000	238.02
10.000	9.974	280.1900	423.3000	230.58
11.000	10.970	241.2500	375.1000	224.05
12.000	11.965	206.9000	329.5000	218.72
13.000	12.960	176.8500	287.1000	214.60
14.000	13.955	150.7800	248.4000	211.47
15.000	14.949	128.2700	214.0000	208.85
16.000	15.943	108.9500	183.2000	207.14
17.000	16.937	92.4630	155.8000	206.79
18.000	17.931	78.5030	131.5000	207.96
19.000	18.924	66.7420	110.6000	210.15
20.000	19.917	56.8410	93.2600	212.32
21.000	20.909	48.4870	78.8300	214.28
22.000	21.901	41.4210	66.7500	216.18
23.000	22.893	35.4340	56.6400	217.95
24.000	23.885	30.3520	48.1300	219.66
25.000	24.876	26.0300	40.9800	221.29
26.000	25.867	22.3480	34.9600	222.71
27.000	26.858	19.2060	29.8700	224.02
28.000	27.848	16.5210	25.5500	225.29
29.000	28.838	14.2240	21.8700	226.57
30.000	29.828	12.2568	18.7400	227.86
32.000	31.806	9.1322	13.7500	231.38
34.000	33.784	6.8340	10.1400	234.80
36.000	35.760	5.1397	7.4880	239.05
38.000	37.735	3.8868	5.5500	243.93
40.000	39.708	2.9584	4.1220	249.95
42.000	41.681	2.2661	3.0870	255.69
44.000	43.652	1.7460	2.3310	260.87
46.000	45.622	1.3518	1.7760	265.09
48.000	47.590	1.0499	1.3700	266.85
50.000	49.558	.8161	1.0650	266.85
52.000	51.524	.6342	.8301	266.09
54.000	53.489	.4924	.6493	264.08
56.000	55.453	.3815	.5067	262.22
58.000	57.415	.2951	.3957	259.71
60.000	59.377	.2275	.3102	255.41
62.000	61.337	.1746	.2428	250.43
64.000	63.295	.1331	.1906	243.30
66.000	65.253	.1007	.1490	235.37
68.000	67.209	.0753	.1164	225.47
70.000	69.165	.0558	.0883	220.13

TABLE IV-11. HYDROSTATIC MODEL ATMOSPHERE

NOVEMBER

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1017.5000	1227.0000	289.06
.004	.004	1017.0000	1227.0000	288.80
1.000	.999	903.8400	1096.0000	287.39
2.000	1.997	801.8500	989.0000	282.45
3.000	2.995	709.8600	892.0000	277.24
4.000	3.993	626.9000	804.8000	271.35
5.000	4.991	552.0600	726.3000	264.78
6.000	5.988	484.5700	654.9000	257.78
7.000	6.985	423.7800	589.6000	250.41
8.000	7.982	369.1400	529.6000	242.83
9.000	8.978	320.1500	473.9000	235.33
10.000	9.974	276.4300	422.7000	228.10
11.000	10.970	237.6200	373.5000	221.64
12.000	11.965	203.4500	327.7000	216.30
13.000	12.960	173.6400	284.2000	212.86
14.000	13.955	147.9000	244.5000	210.73
15.000	14.949	125.7800	209.9000	208.71
16.000	15.943	106.8400	179.5000	207.39
17.000	16.937	90.6850	152.7000	206.90
18.000	17.931	76.9640	129.2000	207.52
19.000	18.924	65.4100	109.0000	209.01
20.000	19.917	55.6460	92.0500	210.60
21.000	20.909	47.3970	77.8600	212.07
22.000	21.901	40.4200	65.9000	213.68
23.000	22.893	34.5130	55.8300	215.35
24.000	23.885	29.5080	47.3500	217.11
25.000	24.876	25.2600	40.2600	218.58
26.000	25.867	21.6450	34.3000	219.81
27.000	26.858	18.5650	29.2400	221.22
28.000	27.848	15.9390	24.9600	222.49
29.000	28.838	13.6970	21.3300	223.73
30.000	29.828	11.7806	18.2400	225.04
32.000	31.806	8.7465	13.3500	228.78
34.000	33.784	6.5271	9.7840	232.95
36.000	35.760	4.8988	7.2030	237.49
38.000	37.735	3.6962	5.3430	241.56
40.000	39.708	2.8054	3.9610	247.29
42.000	41.681	2.1422	2.9630	252.48
44.000	43.652	1.6452	2.2290	257.69
46.000	45.622	1.2695	1.6950	261.52
48.000	47.590	.9831	1.2980	264.45
50.000	49.558	.7626	1.0050	264.92
52.000	51.524	.5918	.7803	264.80
54.000	53.489	.4589	.6087	263.26
56.000	55.453	.3554	.4740	261.83
58.000	57.415	.2749	.3689	260.23
60.000	59.377	.2122	.2882	257.09
62.000	61.337	.1631	.2256	252.49
64.000	63.295	.1245	.1789	243.05
66.000	65.253	.0942	.1394	235.97
68.000	67.209	.0705	.1090	225.93
70.000	69.165	.0522	.0833	218.76

TABLE IV-12. HYDROSTATIC MODEL ATMOSPHERE

DECEMBER

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1018.4000	1242.0000	285.82
.004	.004	1017.9000	1240.0000	285.96
1.000	.999	903.5200	1107.0000	284.22
2.000	1.997	800.5200	997.9000	279.47
3.000	2.995	707.7500	899.1000	274.22
4.000	3.993	624.1600	810.5000	268.29
5.000	4.991	548.8400	730.6000	261.72
6.000	5.988	481.0100	657.6000	254.80
7.000	6.985	420.0300	590.9000	247.64
8.000	7.982	365.3000	530.0000	240.12
9.000	8.978	316.3000	473.7000	232.60
10.000	9.974	272.6400	421.2000	225.51
11.000	10.970	234.0200	370.8000	219.86
12.000	11.965	200.2100	323.0000	215.94
13.000	12.960	170.9300	278.1000	214.15
14.000	13.955	145.7600	238.9000	212.53
15.000	14.949	124.1300	205.4000	210.51
16.000	15.943	105.5600	176.2000	208.69
17.000	16.937	89.6880	150.3000	207.94
18.000	17.931	76.1910	127.4000	208.28
19.000	18.924	64.7670	107.7000	209.46
20.000	19.917	55.1120	91.0900	210.78
21.000	20.909	46.9500	77.0300	212.34
22.000	21.901	40.0450	65.2400	213.84
23.000	22.893	34.1950	55.3400	215.27
24.000	23.885	29.2310	46.9900	216.69
25.000	24.876	25.0120	40.0000	217.85
26.000	25.867	21.4200	34.0800	218.94
27.000	26.858	18.3600	29.0600	220.10
28.000	27.848	15.7500	24.8000	221.23
29.000	28.838	13.5220	21.1900	222.30
30.000	29.828	11.6188	18.1000	223.60
32.000	31.806	8.6121	13.3400	227.70
34.000	33.784	6.4190	9.7530	232.13
36.000	35.760	4.8120	7.1790	236.41
38.000	37.735	3.6294	5.2900	242.00
40.000	39.708	2.7555	3.9280	247.40
42.000	41.681	2.1062	2.9220	254.25
44.000	43.652	1.6218	2.1910	261.04
46.000	45.622	1.2563	1.6660	266.04
48.000	47.590	.9766	1.2860	267.88
50.000	49.558	.7599	1.0000	267.97
52.000	51.524	.5910	.7826	266.33
54.000	53.489	.4537	.6135	263.71
56.000	55.453	.3532	.4797	261.18
58.000	57.415	.2745	.3742	258.69
60.000	59.377	.2116	.2915	255.93
62.000	61.337	.1624	.2282	251.01
64.000	63.295	.1239	.1797	243.10
66.000	65.253	.0939	.1384	239.28
68.000	67.209	.0707	.1076	231.61
70.000	69.165	.0528	.0825	225.68

TABLE IV-13. HYDROSTATIC MODEL ATMOSPHERE

ANNUAL

STATION = 723910 POINT MUGU NAS

Z KM	GEO. HT. KM	P MB	D G/M3	TV DEG K
.000	.000	1016.0000	1224.0000	289.31
.004	.004	1015.5000	1223.0000	289.23
1.000	.999	902.8600	1089.0000	288.90
2.000	1.997	801.6100	981.0000	284.68
3.000	2.995	710.2300	887.3000	278.84
4.000	3.993	627.6200	802.2000	272.55
5.000	4.991	552.9900	724.6000	265.85
6.000	5.988	485.6400	653.6000	258.84
7.000	6.985	424.9600	588.6000	251.52
8.000	7.982	370.4000	528.9000	243.97
9.000	8.978	321.4600	473.7000	236.40
10.000	9.974	277.7400	422.7000	229.12
11.000	10.970	238.9200	376.6000	222.80
12.000	11.965	204.7600	327.2000	217.99
13.000	12.960	175.0100	283.5000	215.06
14.000	13.955	149.3000	244.5000	212.68
15.000	14.949	127.1400	210.6000	210.31
16.000	15.943	108.1200	180.4000	208.76
17.000	16.937	91.8800	153.5000	208.46
18.000	17.931	78.1040	129.9000	209.40
19.000	18.924	66.4650	109.7000	211.16
20.000	19.917	56.6390	92.6800	212.89
21.000	20.909	48.3310	78.4500	214.63
22.000	21.901	41.2950	66.5100	216.30
23.000	22.893	35.3270	56.4700	217.92
24.000	23.885	30.2590	48.0100	219.55
25.000	24.876	25.9460	40.8600	221.14
26.000	25.867	22.2760	34.8500	222.68
27.000	26.858	19.1460	29.7400	224.30
28.000	27.848	16.4730	25.4100	225.81
29.000	28.838	14.1900	21.7300	227.48
30.000	29.828	12.2359	18.6100	229.05
32.000	31.806	9.1368	13.5700	233.68
34.000	33.784	6.8614	9.9350	238.18
36.000	35.760	5.1825	7.4000	242.94
38.000	37.735	3.9368	5.5100	247.88
40.000	39.708	3.0085	4.1190	253.38
42.000	41.681	2.3124	3.0930	258.91
44.000	43.652	1.7870	2.3520	263.57
46.000	45.622	1.3861	1.8060	266.27
48.000	47.590	1.0774	1.3980	267.34
50.000	49.559	.8376	1.0890	266.86
52.000	51.524	.6508	.8510	265.31
54.000	53.489	.5048	.6657	263.06
56.000	55.453	.3907	.5200	260.64
58.000	57.415	.3017	.4059	257.84
60.000	59.377	.2322	.3168	254.27
62.000	61.337	.1779	.2484	248.47
64.000	63.295	.1353	.1949	240.89
66.000	65.253	.1021	.1512	234.41
68.000	67.209	.0764	.1176	226.21
70.000	69.165	.0565	.0897	218.45

APPENDIX A

EXAMPLES OF WIND STATISTICS FOR POINT MUGU, CALIFORNIA

Appendix A gives some examples of graphical displays of wind statistics that can be derived from the statistical parameters presented in table I. These illustrations should aid the user of the RRA to understand the functional relationships of the probability wind models and, thus, to develop an appreciation of the powerful properties of the bivariate normal probability distribution function.

All illustrations for this appendix are derived from the five wind component statistical parameters from table I.1 for January and table I.7 for July for eight selected altitudes. These selected altitudes are 4, 12, 20, 30, 40, 50, 60, and 70 km.

1. Windspeed (Figures A-1 through A-4)

The five wind components from table I are used as inputs to the generalized Rayleigh probability density function, equation (29), and then integrated as indicated by equation (30) to obtain the probability distribution function for windspeed. The derived distribution functions for windspeed are shown in figures A-1 through A-4 on the normal probability scale.

2. Frequency of Wind Direction (Figures A-5 through A-20)

The derived frequencies for wind direction shown in figures A-5 through A-20 were obtained using the five wind component parameters from tables I.1 and I.7 as input values in equation (35). The limits of integration (performed numerically) are over the 22.5-degree interval for each of the 16 compass points. These graphs give the percentage frequency that the wind will blow from the direction intervals.

3. Mean Wind Components and 80th Interpercentile Range of Wind Components (Figures A-21 through A-36)

The wind component means with respect to any orthogonal axes are obtained by using the zonal and meridional mean wind components in equations (44) and (45). These component means form the circles shown in figures A-21 through A-36. Further, the zonal and meridional wind component variances and correlation coefficients are used in equations (46 and (47) to obtain the variances with respect to any orthogonal axes. These rotated component variances and the rotated component means are used in equation (8) to obtain the 80th interpercentile range of wind components and are then illustrated in figures A-21 through A-36.

4. Probability Ellipses (Figures A-37 through A-52)

Using the five wind component parameters from tables I.1 and I.7 and $p = 0.50$, $p = 0.95$, and $p = 0.99$ as input values to equation (13), the wind

probability ellipses shown in figures A-37 through A-52 were obtained by computer graphics. The statistical inferences are, for example, that 50 percent of the wind vectors lie within the smaller ellipse and 99 percent of the wind vectors lie within the outer ellipse. These probability ellipses are illustrated using the standard meteorological coordinate system explained in section I.B.1.

5. Conditional Windspeed Given the Wind Direction (Figures A-53 through A-68)

The five wind component parameters from table I.1 and table I.7 are used to evaluate the conditional probability distribution function, equation (41). Figures A-53 through A-68 show interpolations of the conditional function made to obtain the 5th, 15th, 50th (median), 85th, 95th, and 99th conditional percentile values of windspeed, given the wind directions. The conditional mean windspeed, given the wind direction, is obtained from equation (40). The conditional mode (most probable) windspeed, given the wind direction, is obtained from equation (38). The conditional mean windspeed and the conditional windspeed modal value, given the wind direction, are also shown in these figures. For some figures, the conditional windspeed values are invalid for the given wind direction near 270° (from the west). This is caused by the lack of computational precision in evaluating equations (40) and (41) when the arguments for the Gaussian probability distribution have large negative values, i.e., when the coefficients (b/a) become less than -4 in these equations.

This appendix contains only a few of the many options in presenting wind statistics illustrations.

NOTE: Point Mugu data 32-70 km altitude is also used for the RRAs for Vandenberg AFB and Edwards AFB.

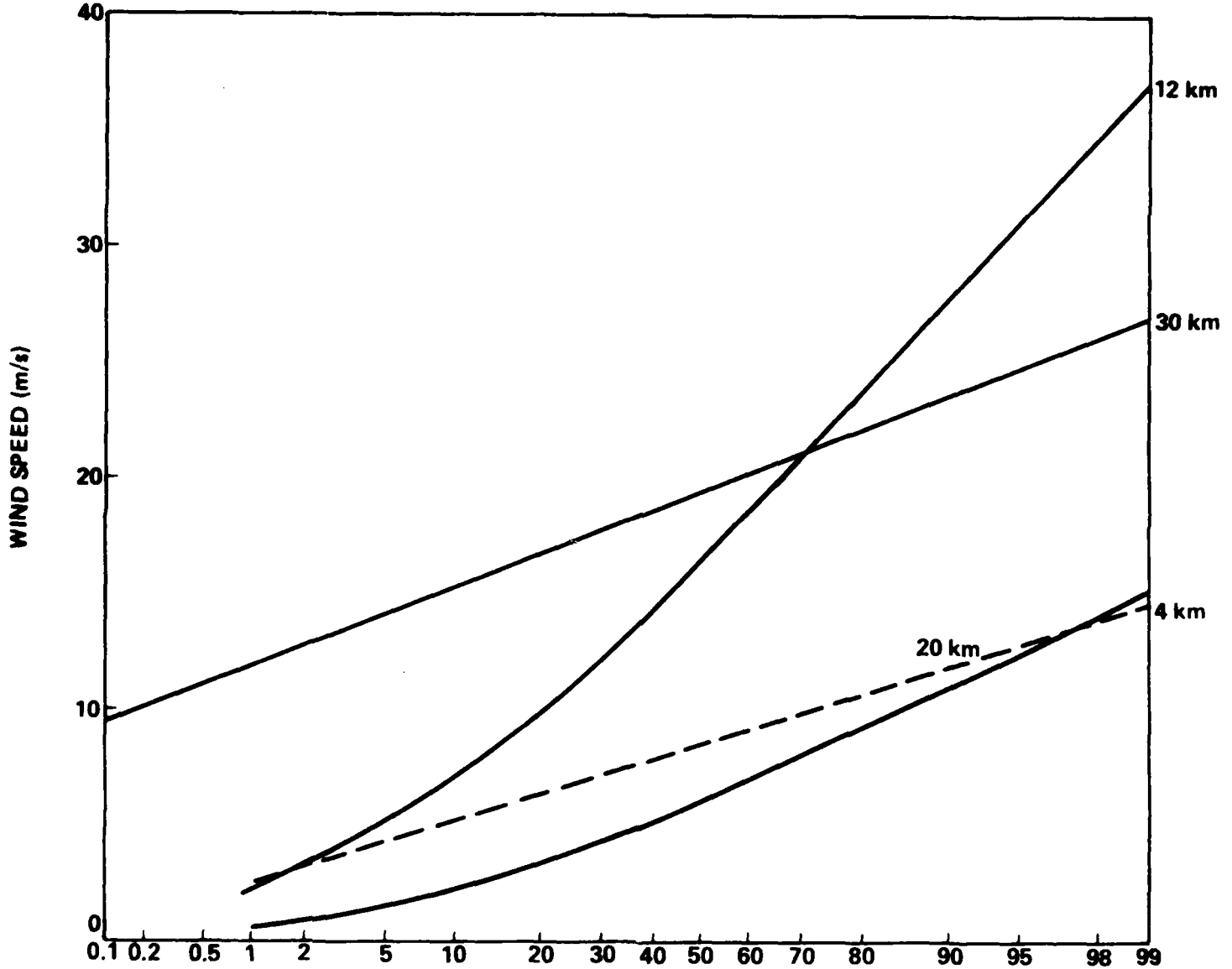


Figure A-1. Rayleigh PDF of wind speed, Pt. Mugu, January.

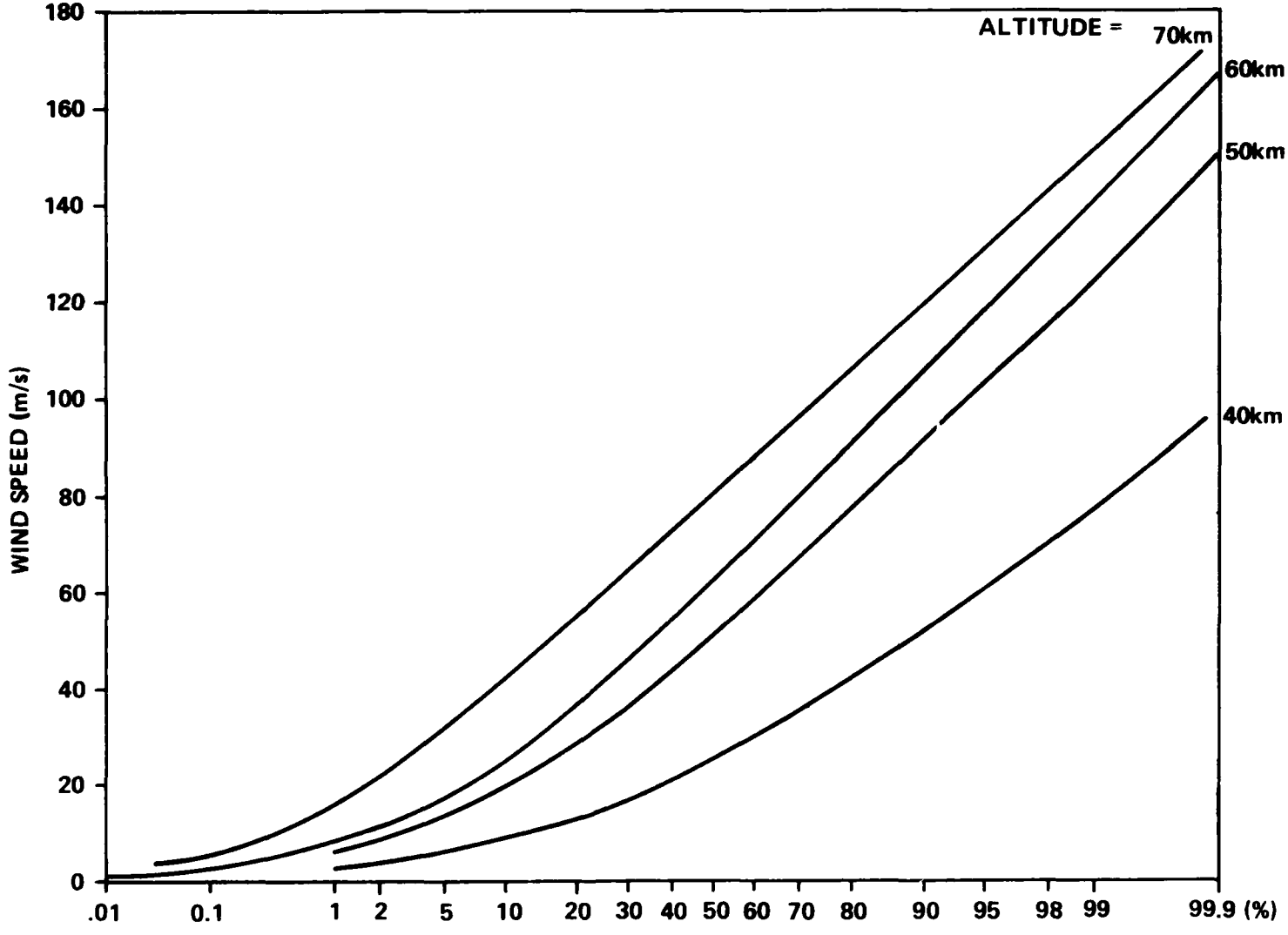


Figure A-2. Rayleigh PDF of wind speed. Pt. Mugu, January.

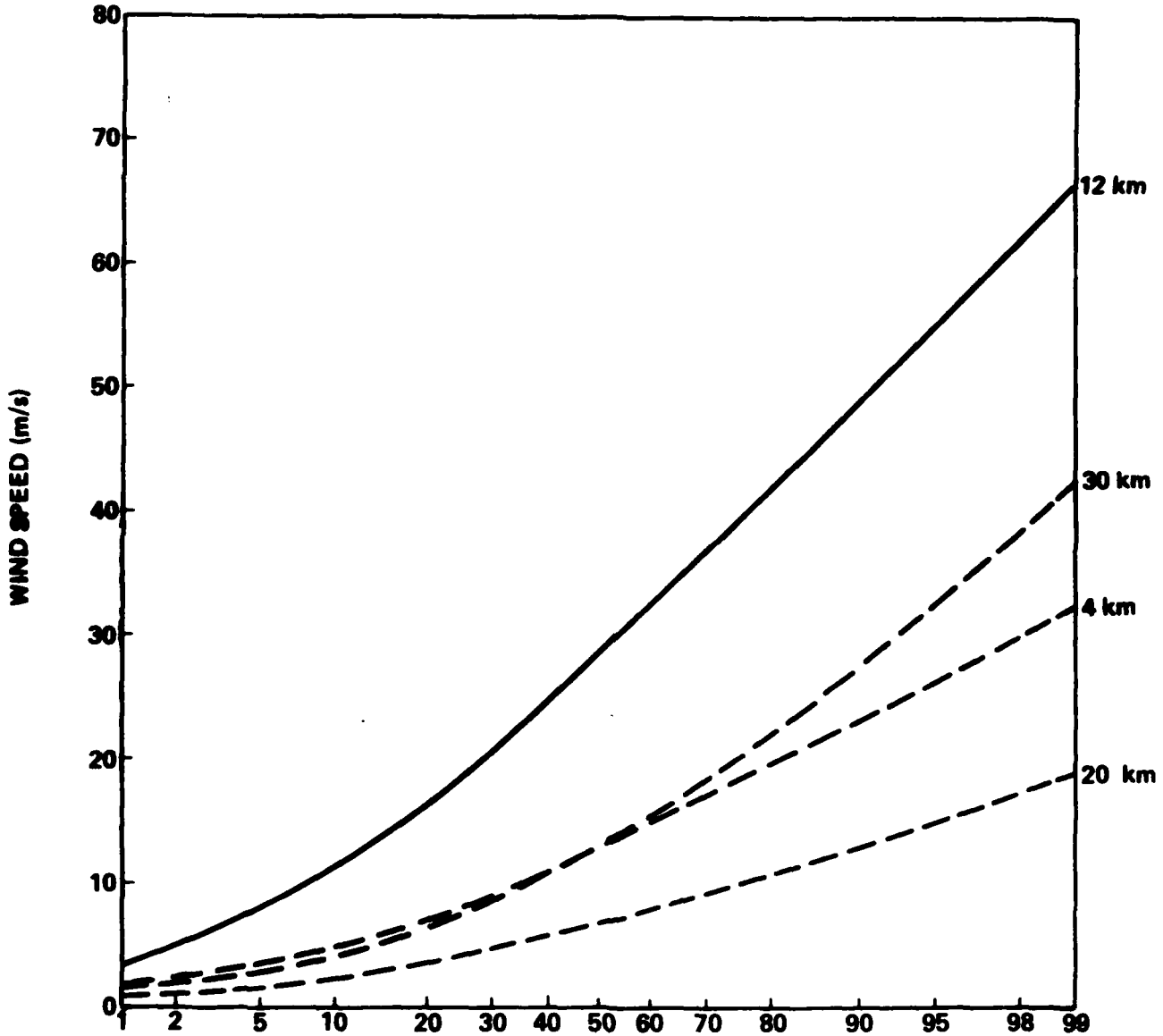


Figure A-3. Rayleigh PDF of wind speed, Pt. Mugu, July.

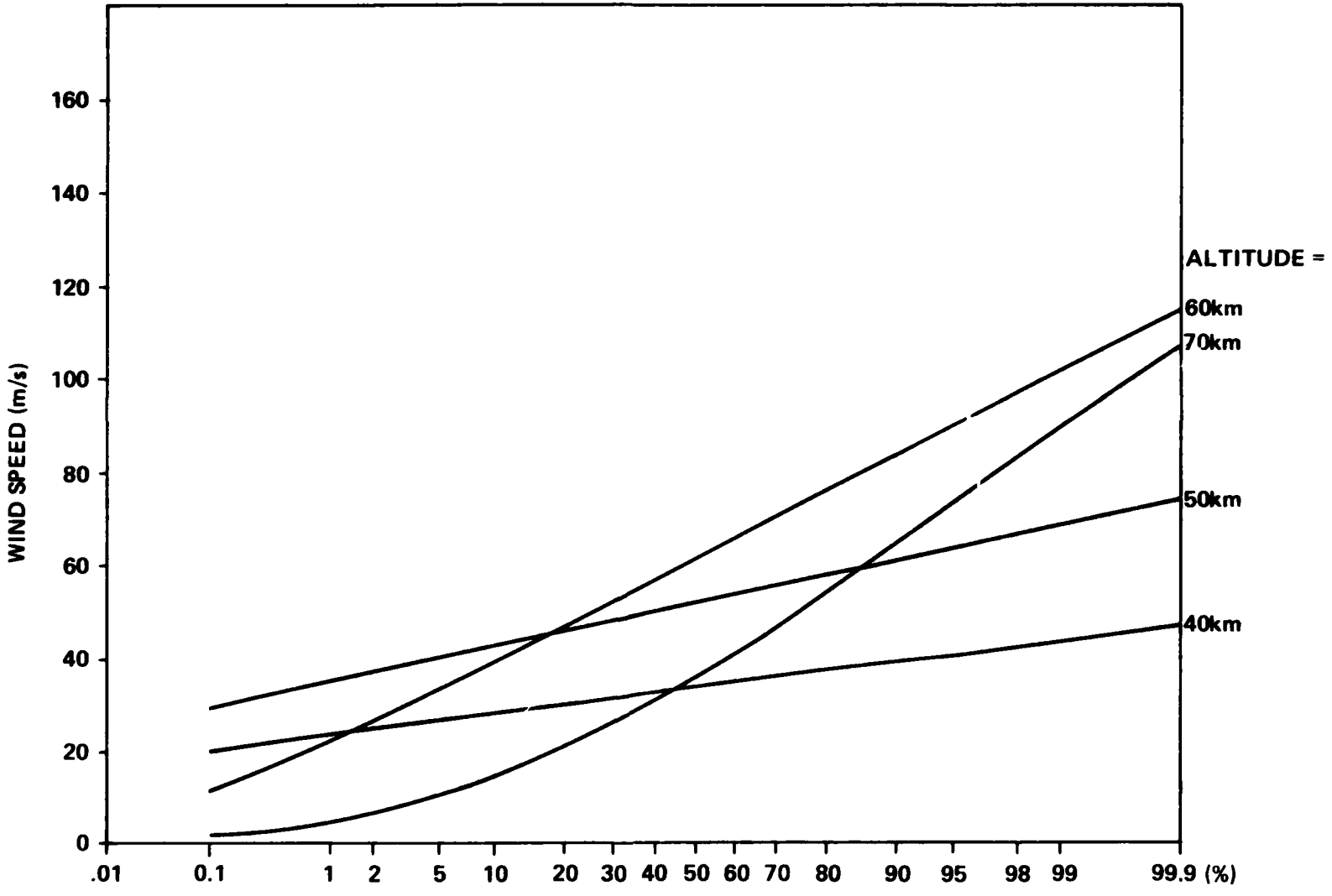
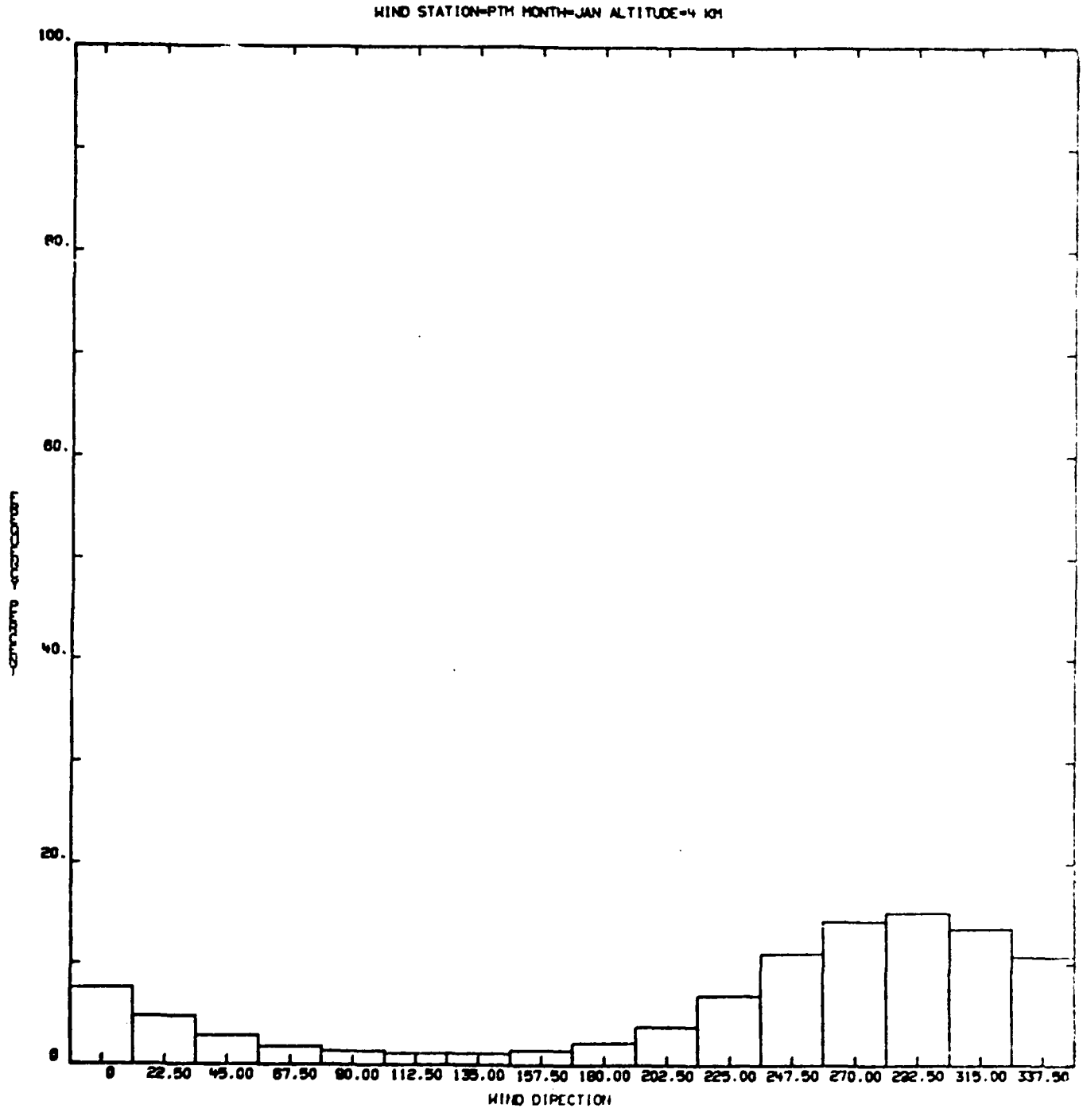


Figure A-4. Rayleigh PDF of wind speed, Pt. Mugu, July.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100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-5.

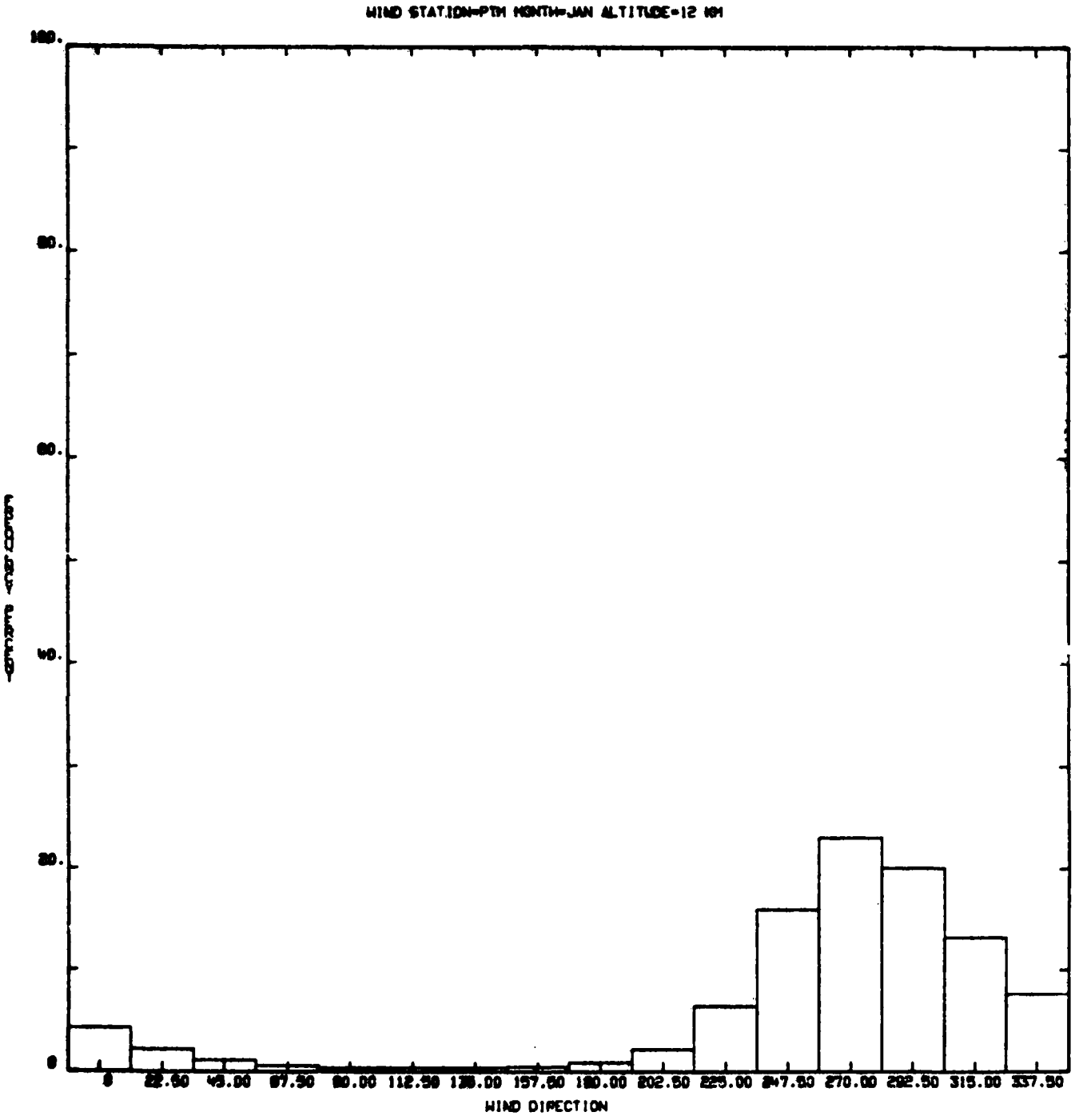

WIND STATION=PTH MONTH=JAN ALTITUDE=12 KM
100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-6.

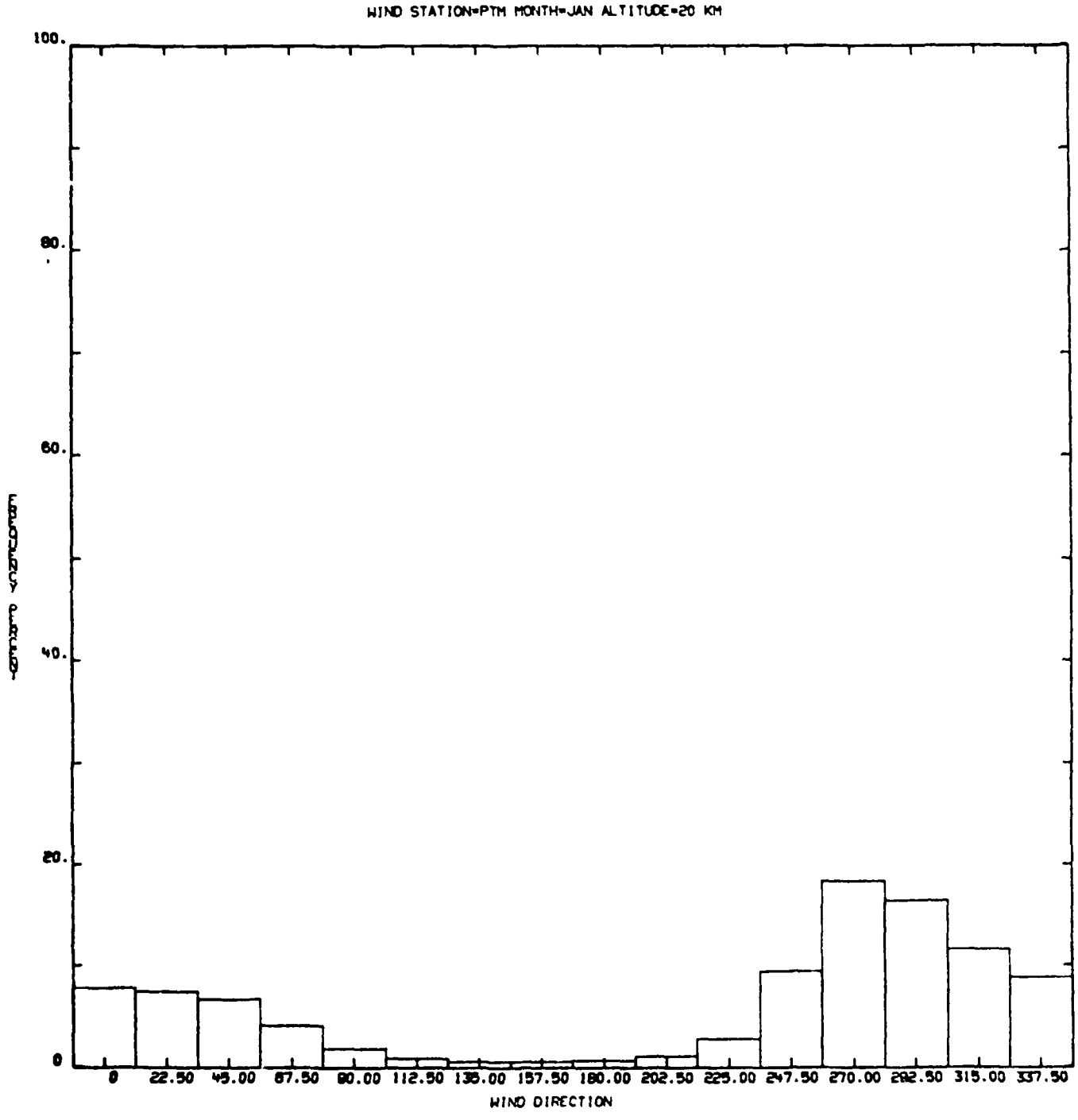

WIND STATION=PTM MONTH=JAN ALTITUDE=20 KM
100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-7.

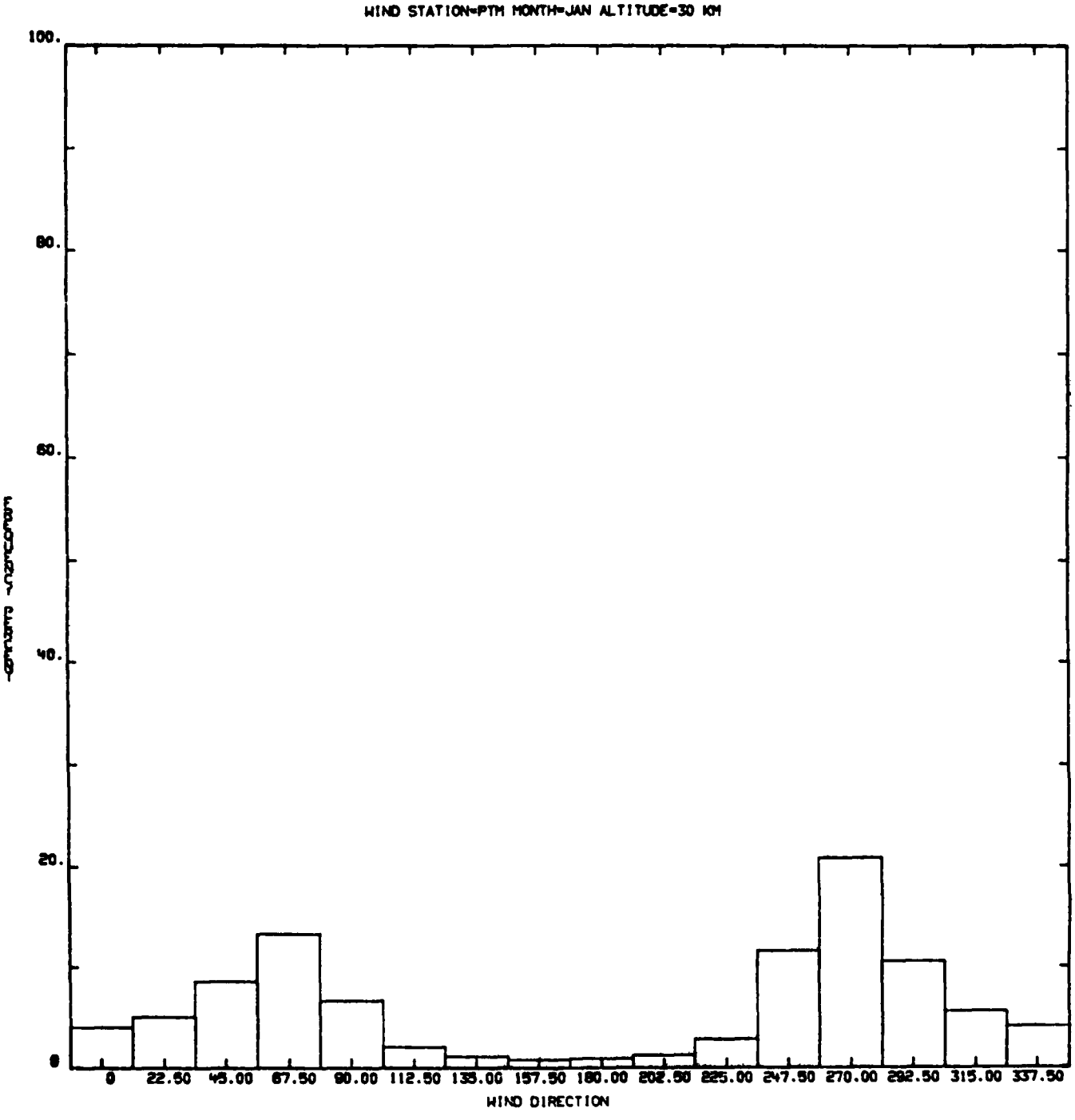

WIND STATION=PTH MONTH=JAN ALTITUDE=30 KM
100.
80.
60.
40.
20.
0
FREQUENCY PERCENT
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-8.

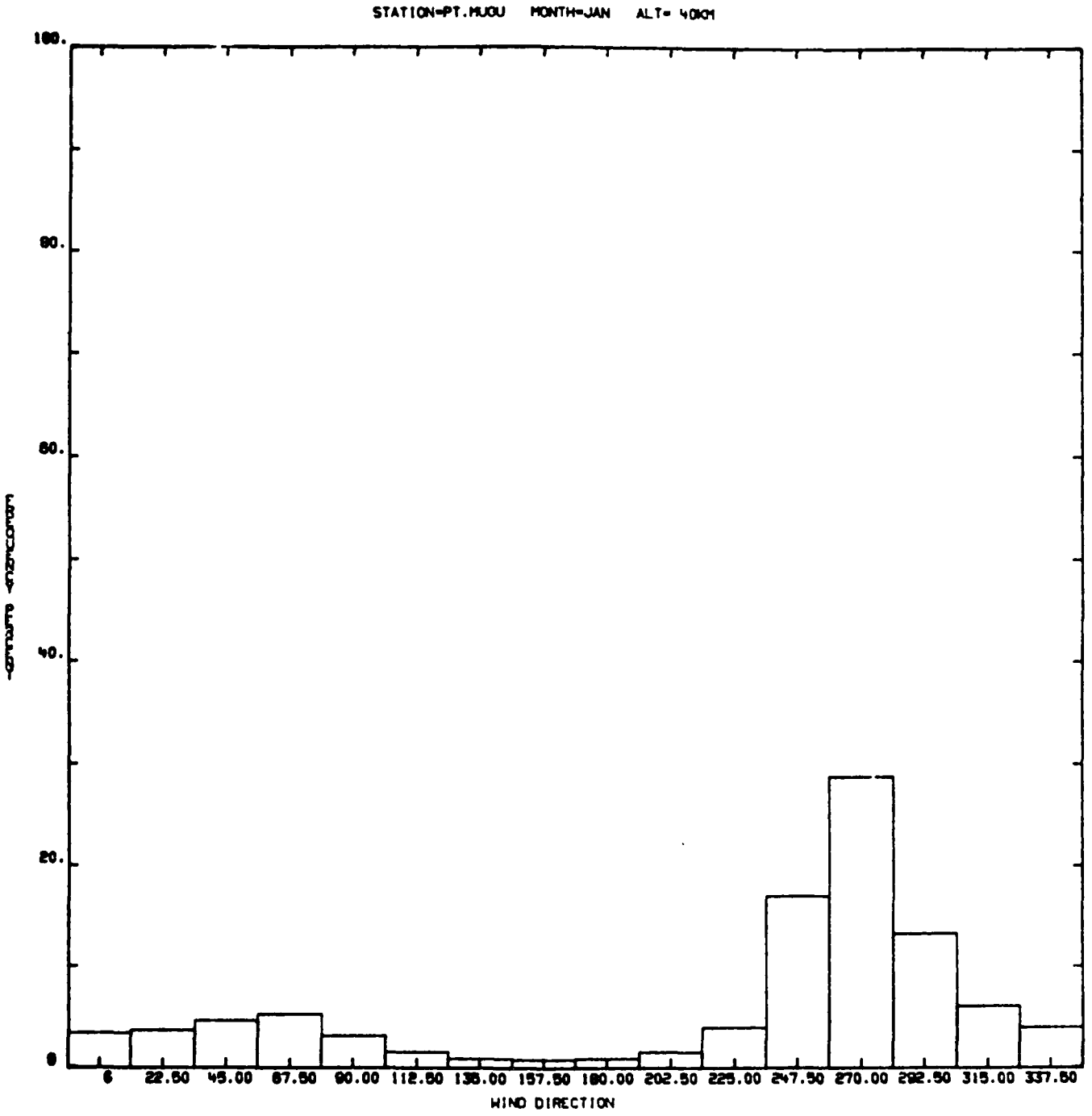

STATION=PT.MUGU MONTH=JAN ALT= 40KM
100.
80.
60.
40.
20.
0
6
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-9.

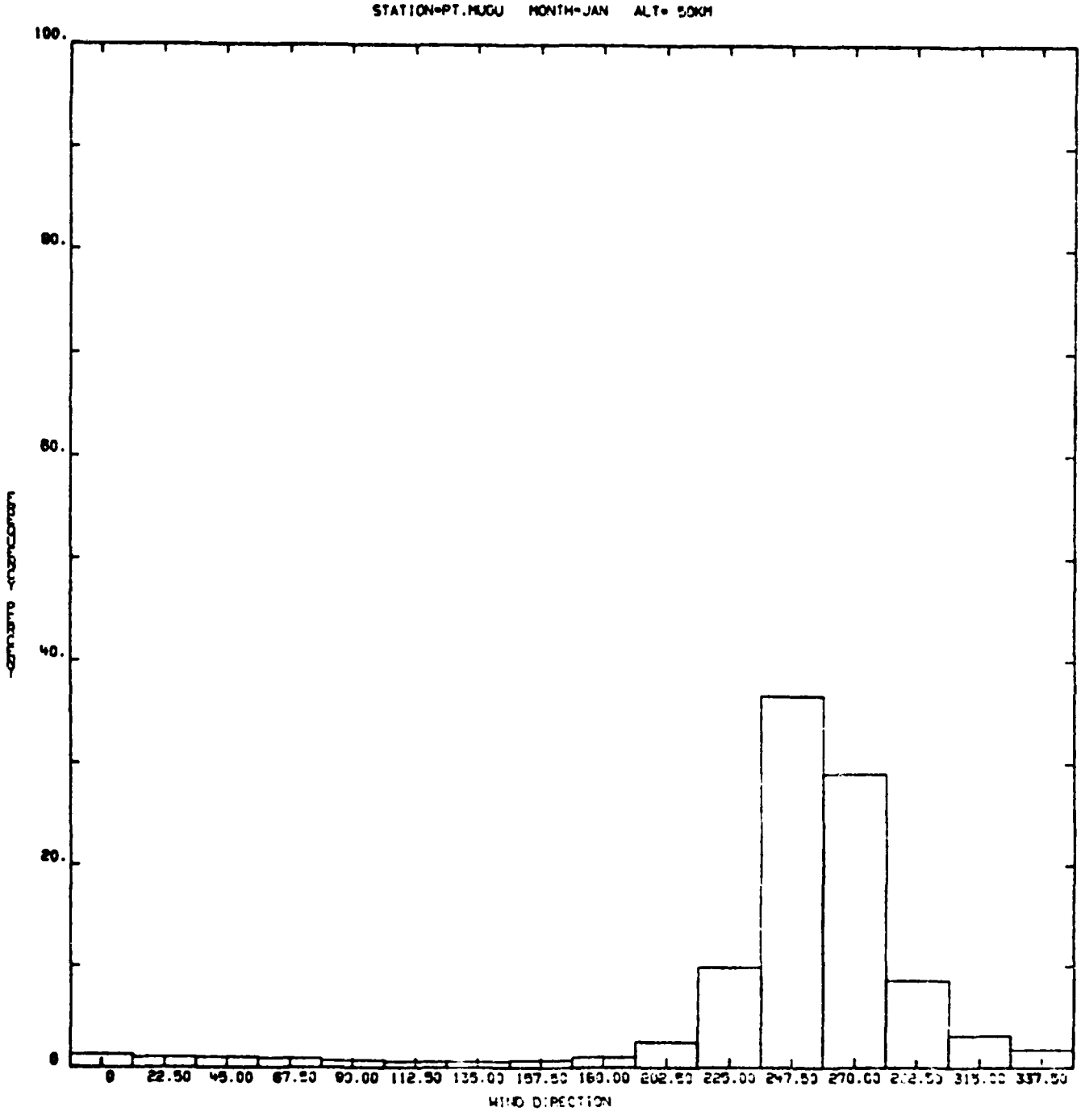

STATION=PT.MUGU MONTH=JAN ALT= 50KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-10.

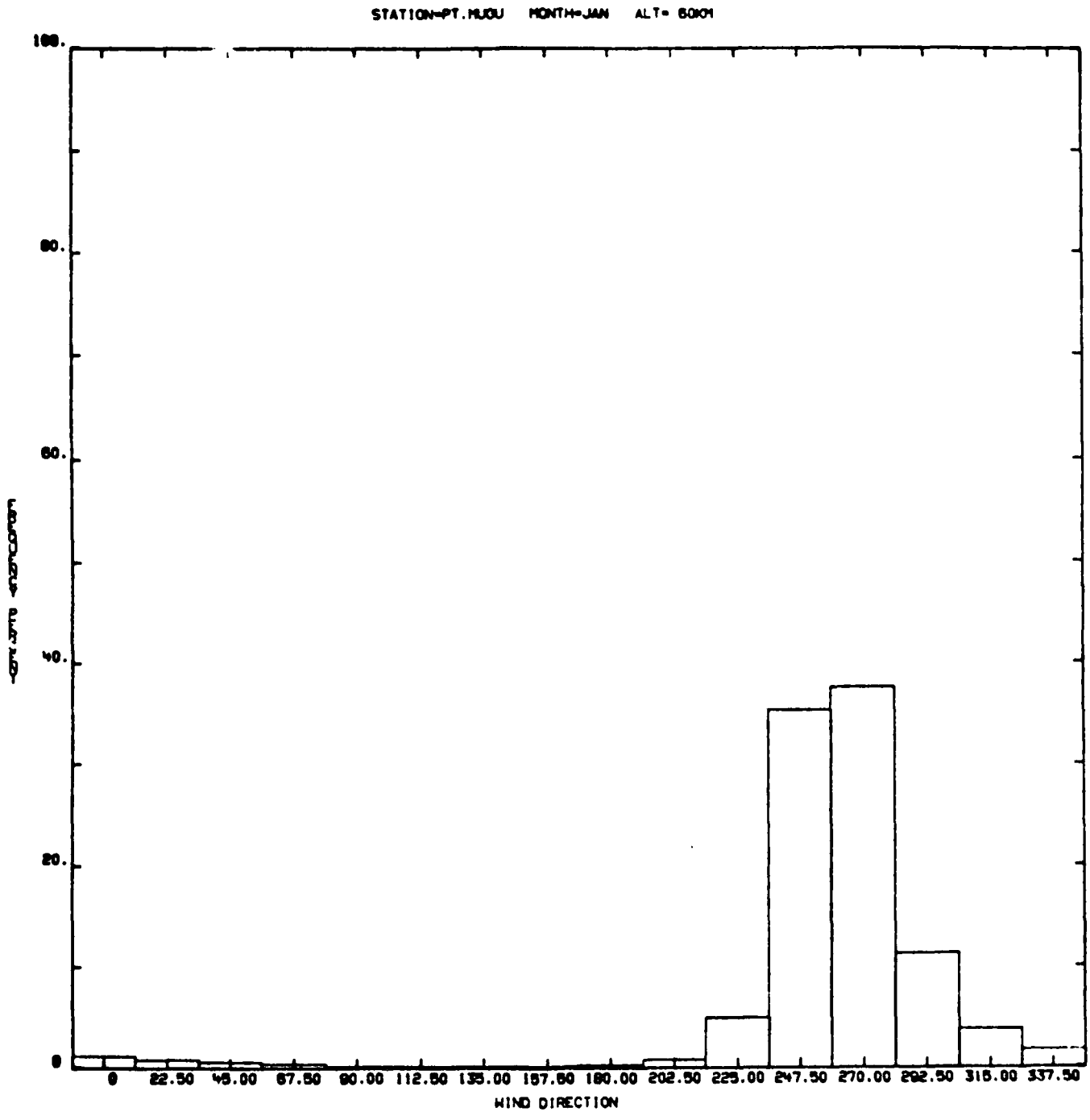

STATION=PT.MUGU MONTH=JAN ALT= 600M
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-11.

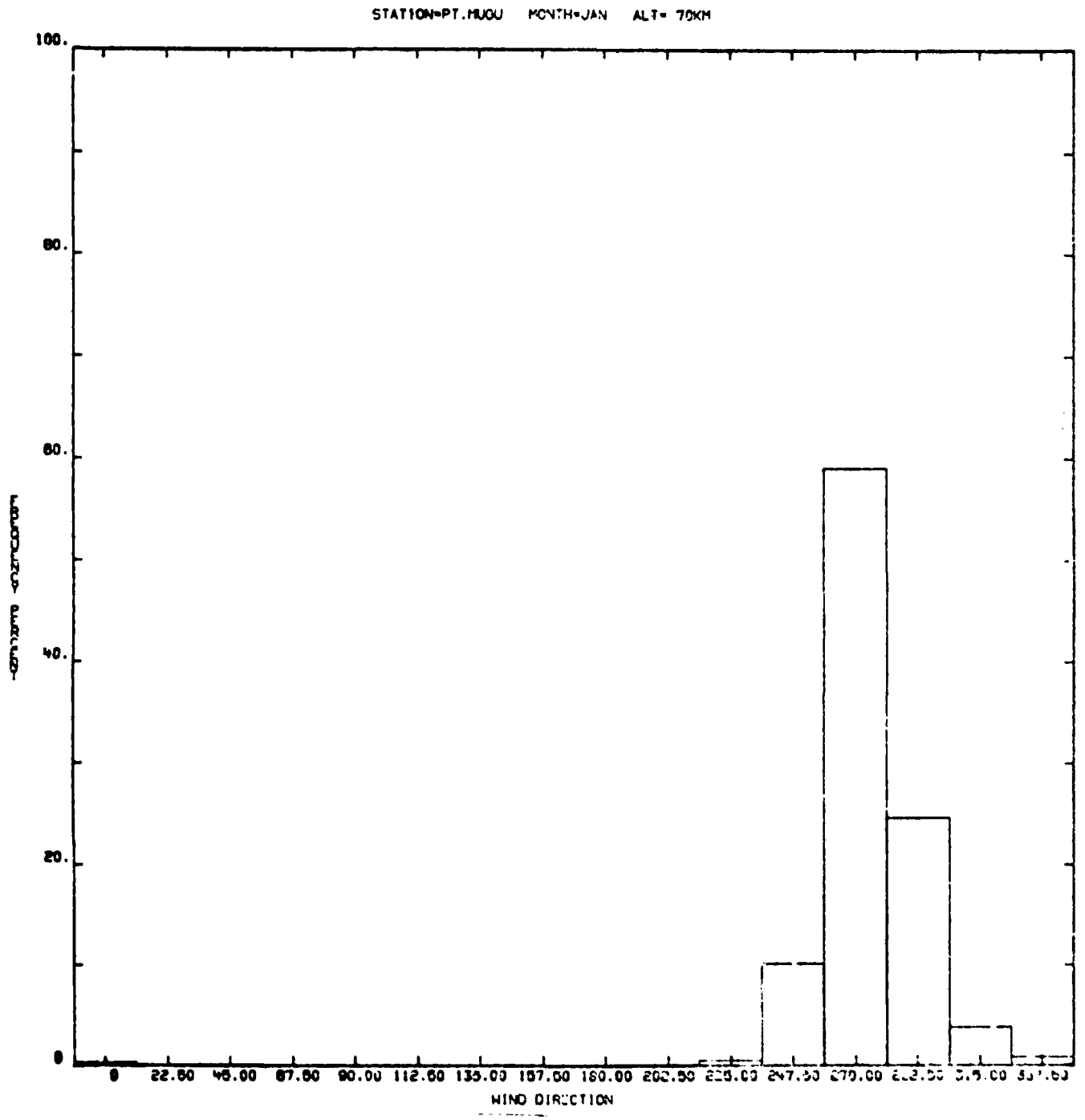

STATION=PT.MUGU MONTH=JAN ALT= 70KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-12.

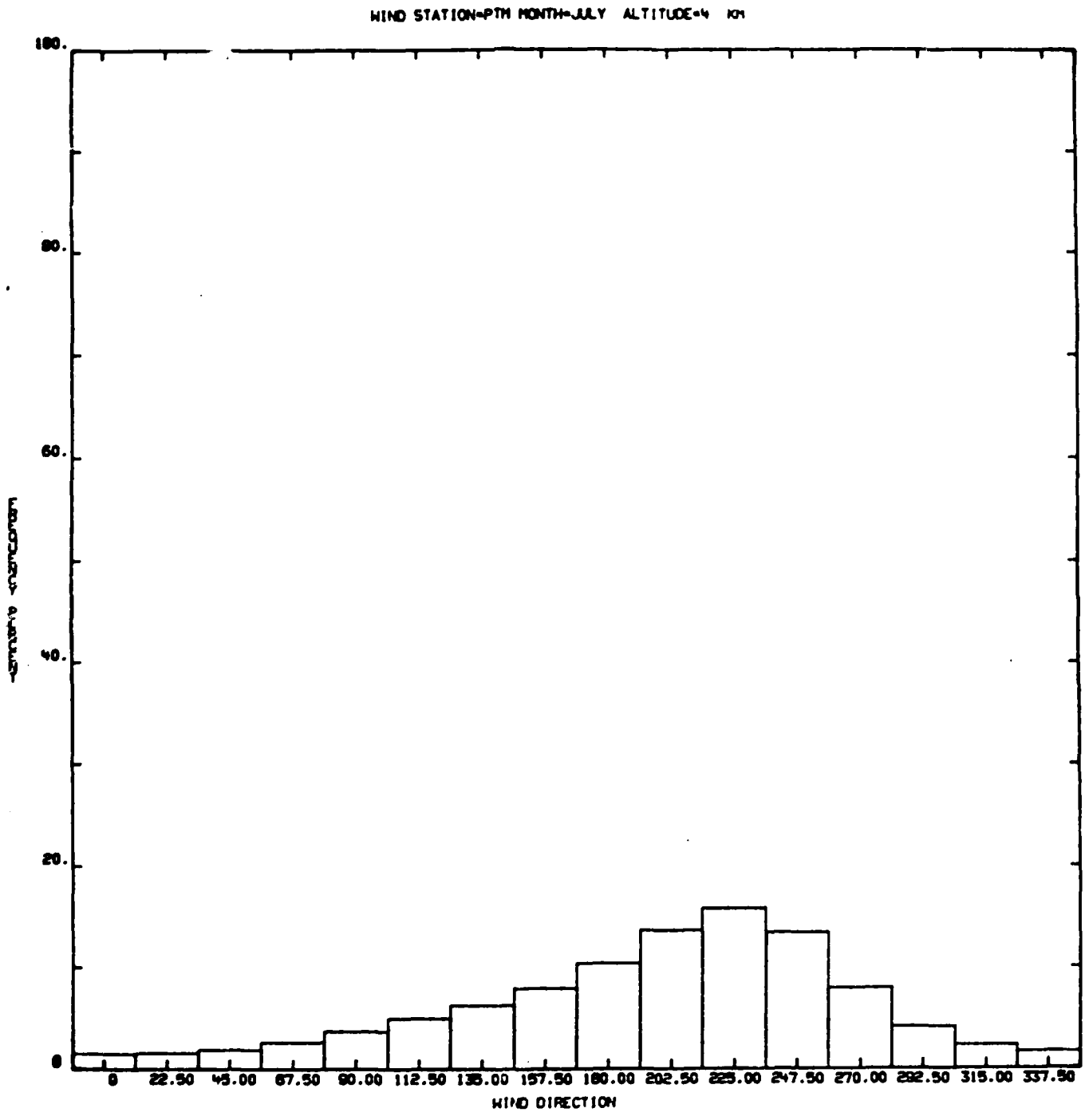

WIND STATION=PTH MONTH=JULY ALTITUDE=4 KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-13.

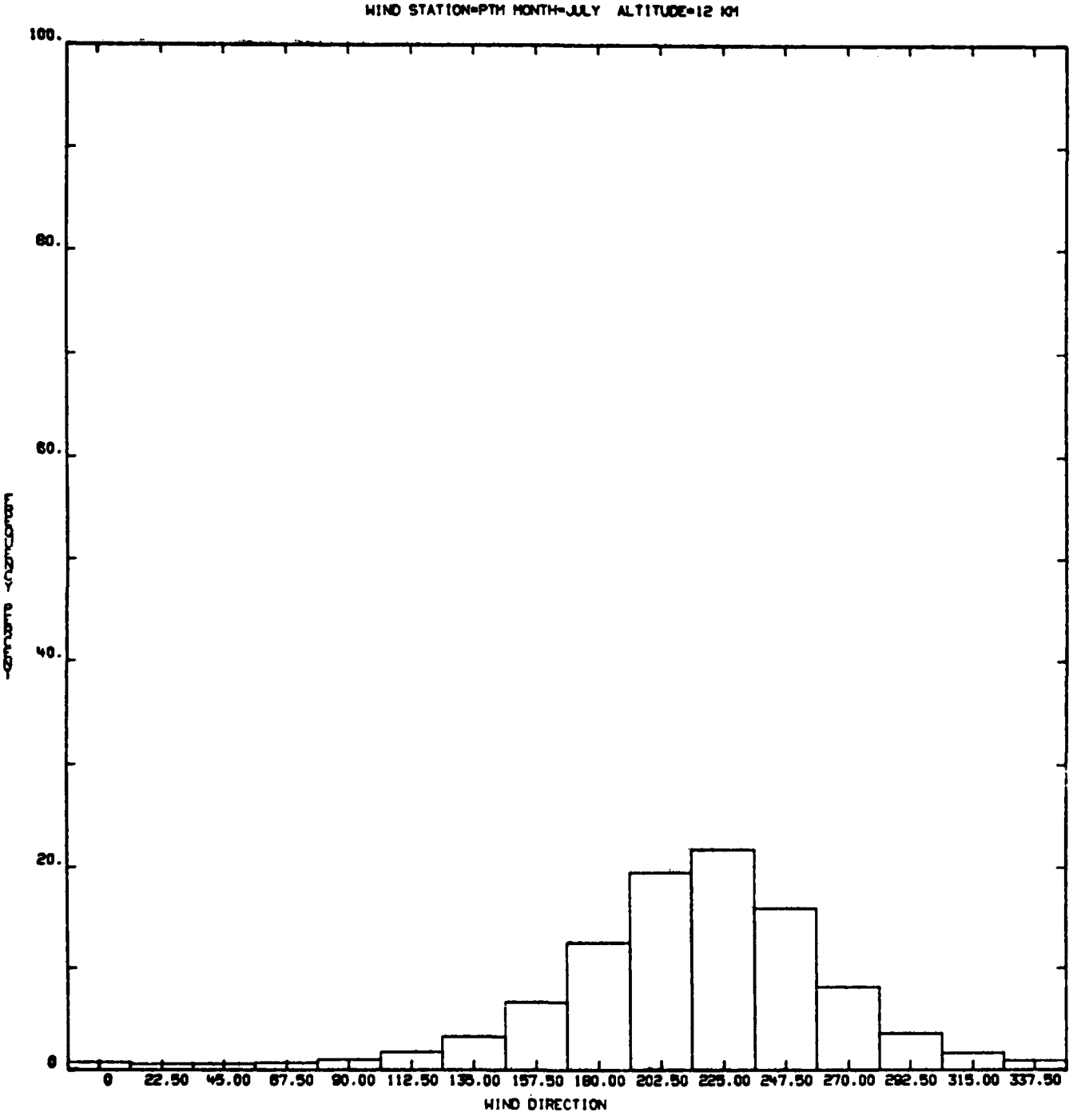

WIND STATION=PTM MONTH=JULY ALTITUDE=12 KM
100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-14.

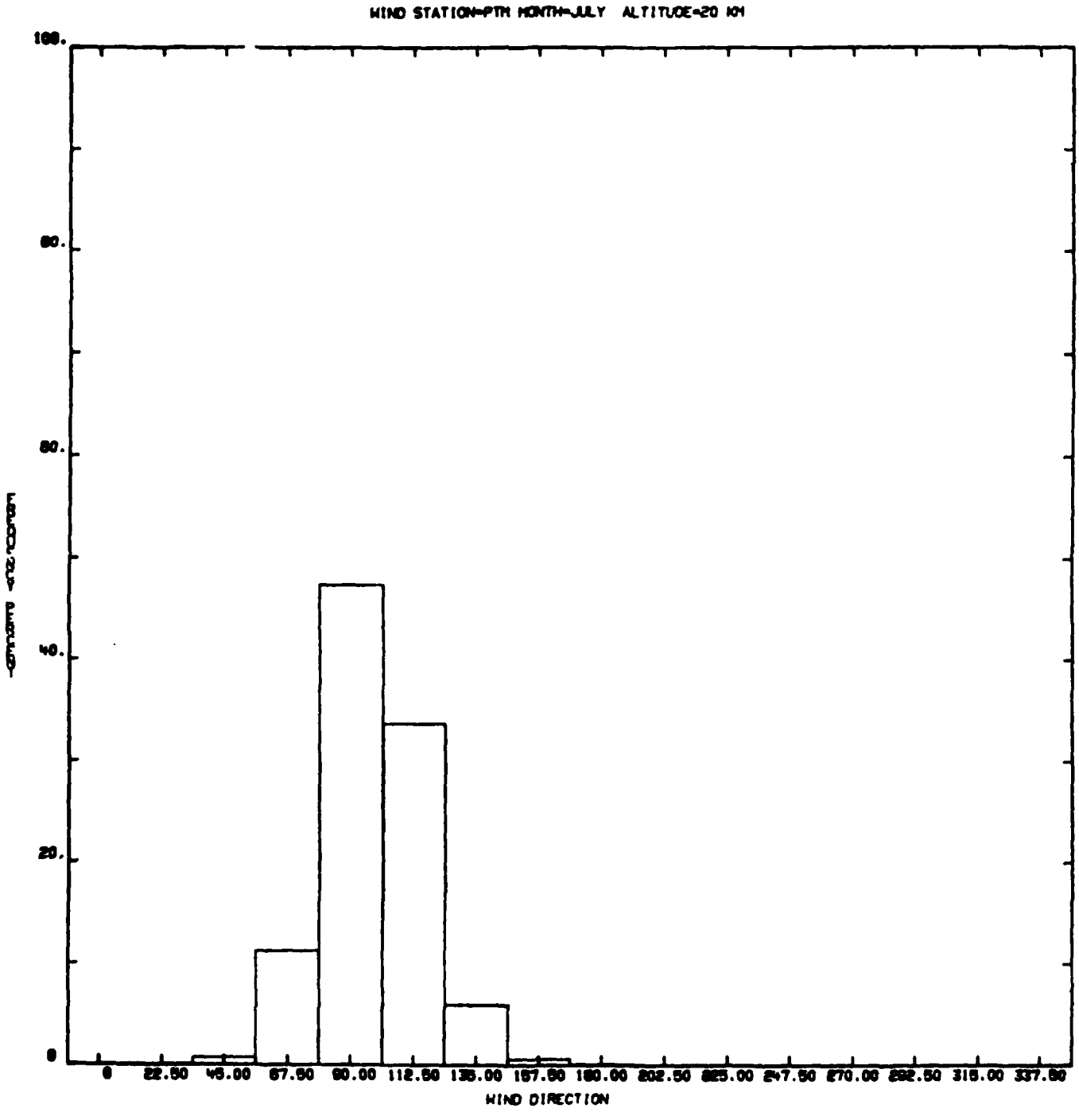

WIND STATION=PTH MONTH=JULY ALTITUDE=20 KM
100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
157.50
180.00
202.50
225.00
247.50
270.00
292.50
315.00
337.50
WIND DIRECTION

Figure A-15.

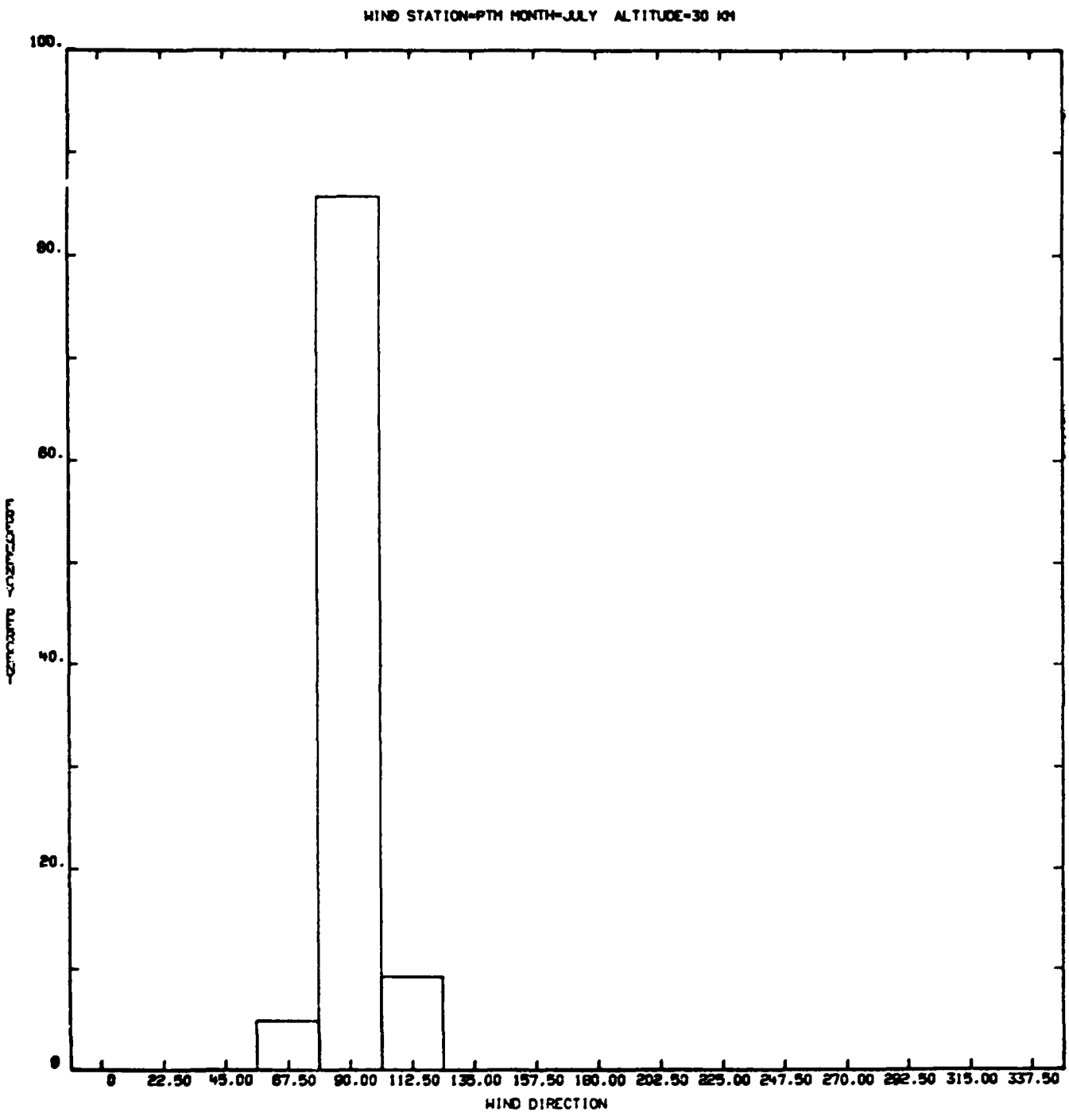

WIND STATION=PTH MONTH=JULY ALTITUDE=30 KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-16.

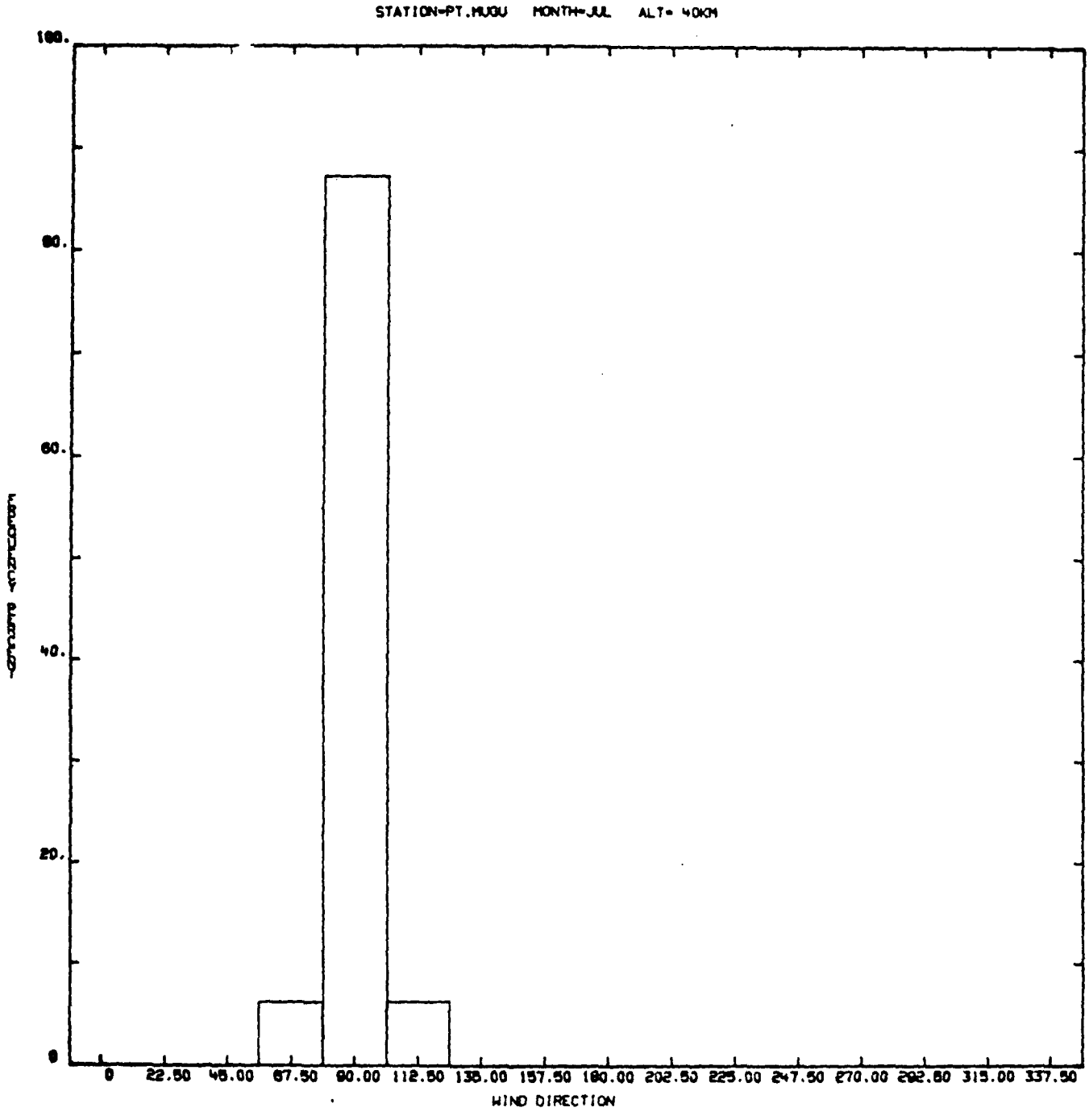

STATION=PT.MUGU MONTH=JUL ALT= 40KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-17.

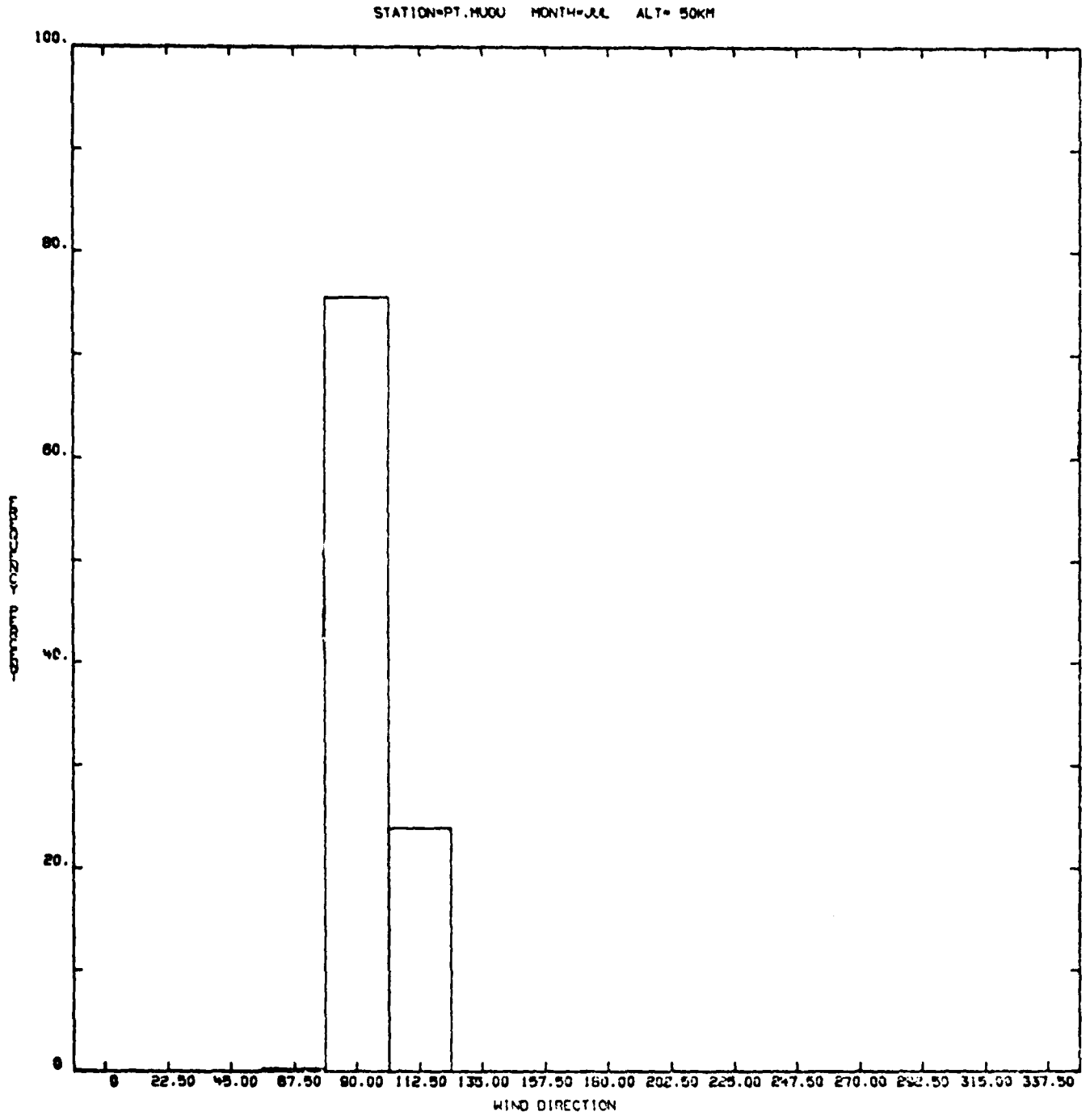

STATION=PT.MUGU MONTH=JUL ALT= 50KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-18.

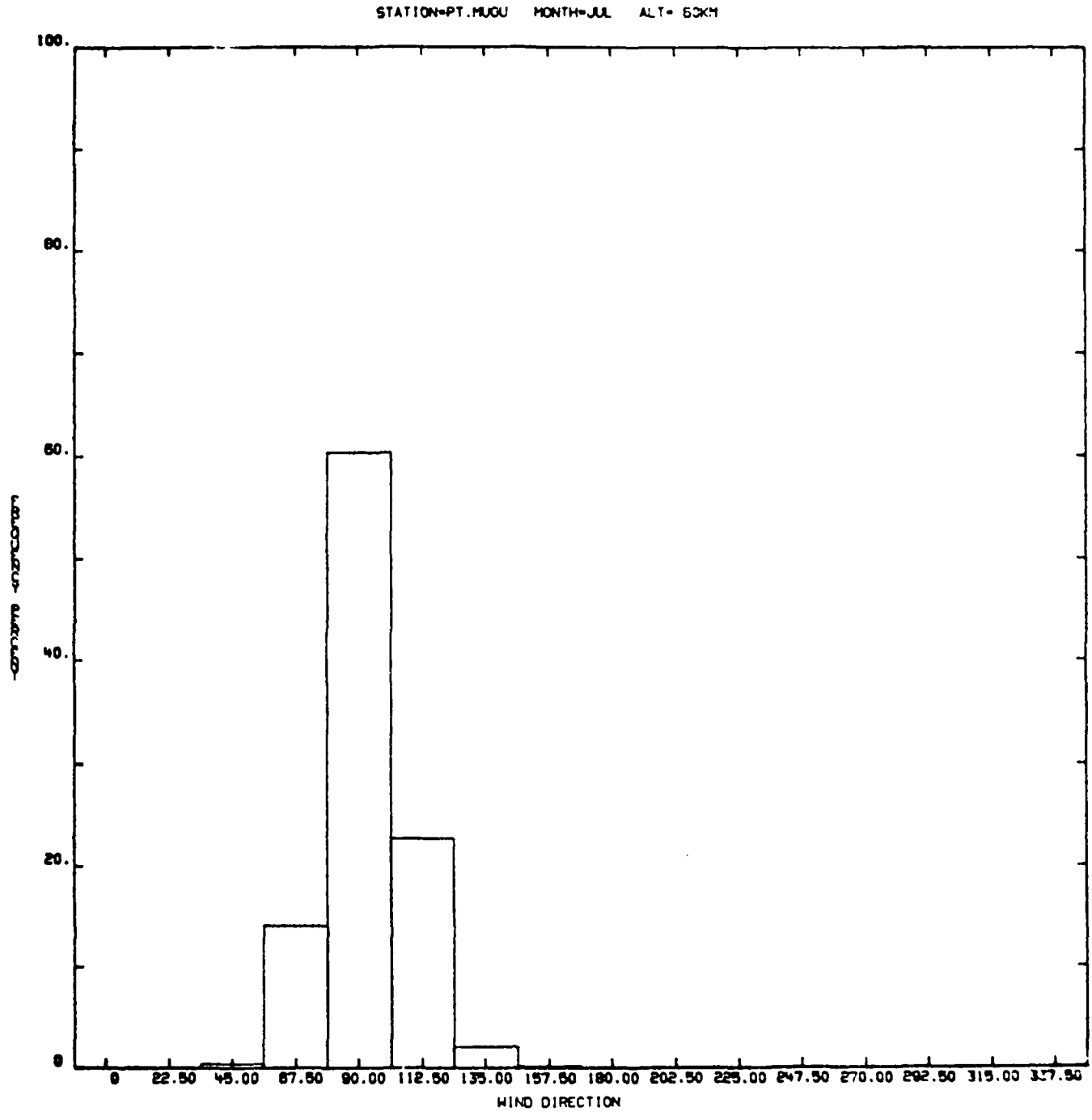

STATION=PT.MUGU MONTH=JUL ALT= 60KM
100.
80.
60.
40.
20.
0
0 22.50 45.00 67.50 90.00 112.50 135.00 157.50 180.00 202.50 225.00 247.50 270.00 292.50 315.00 337.50
WIND DIRECTION

Figure A-19.

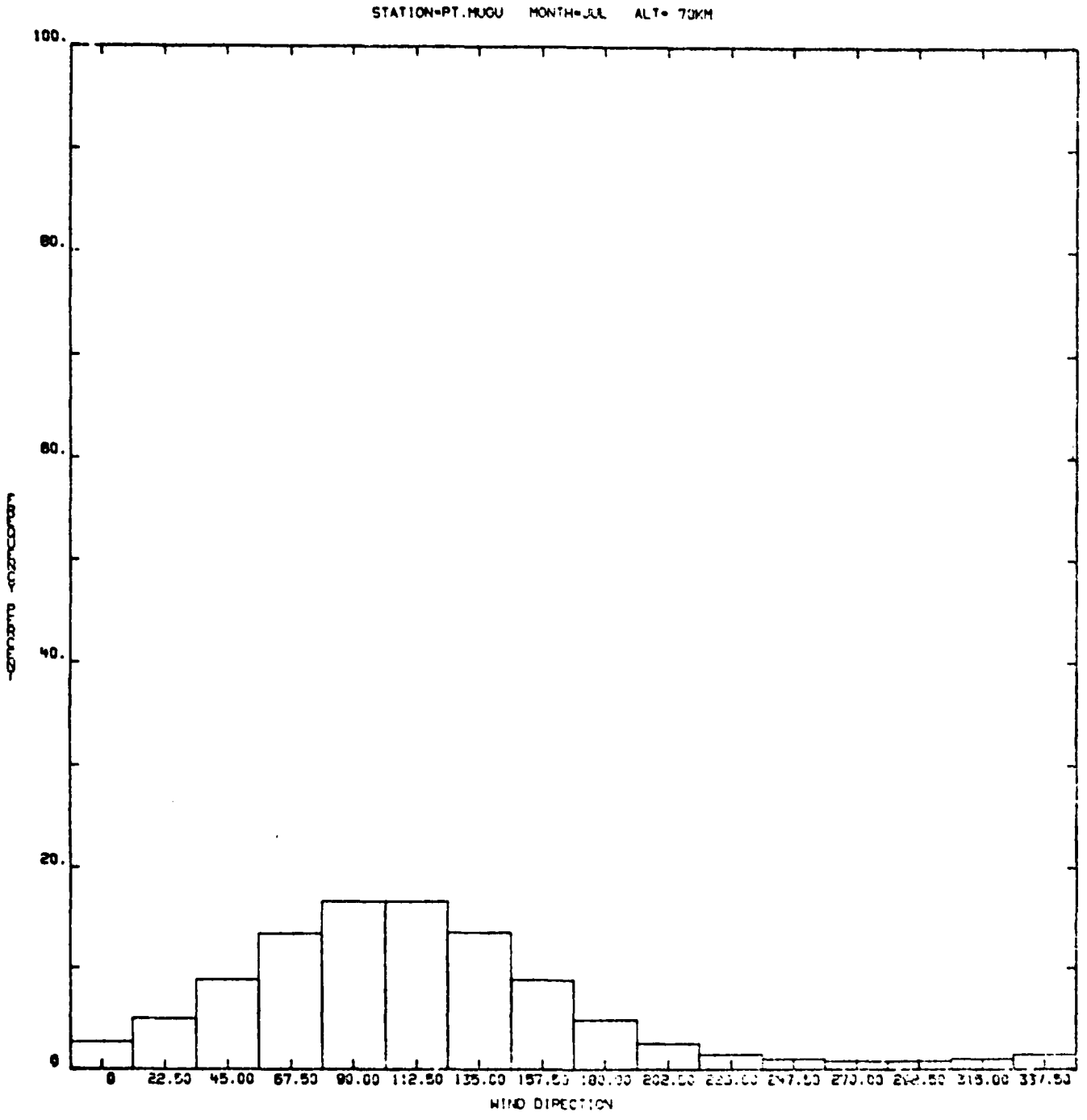

STATION=PT.MUGU MONTH=JUL ALT= 70KM
100.
80.
60.
40.
20.
0
0
22.50
45.00
67.50
90.00
112.50
135.00
WIND DIRECTION

Figure A-20.

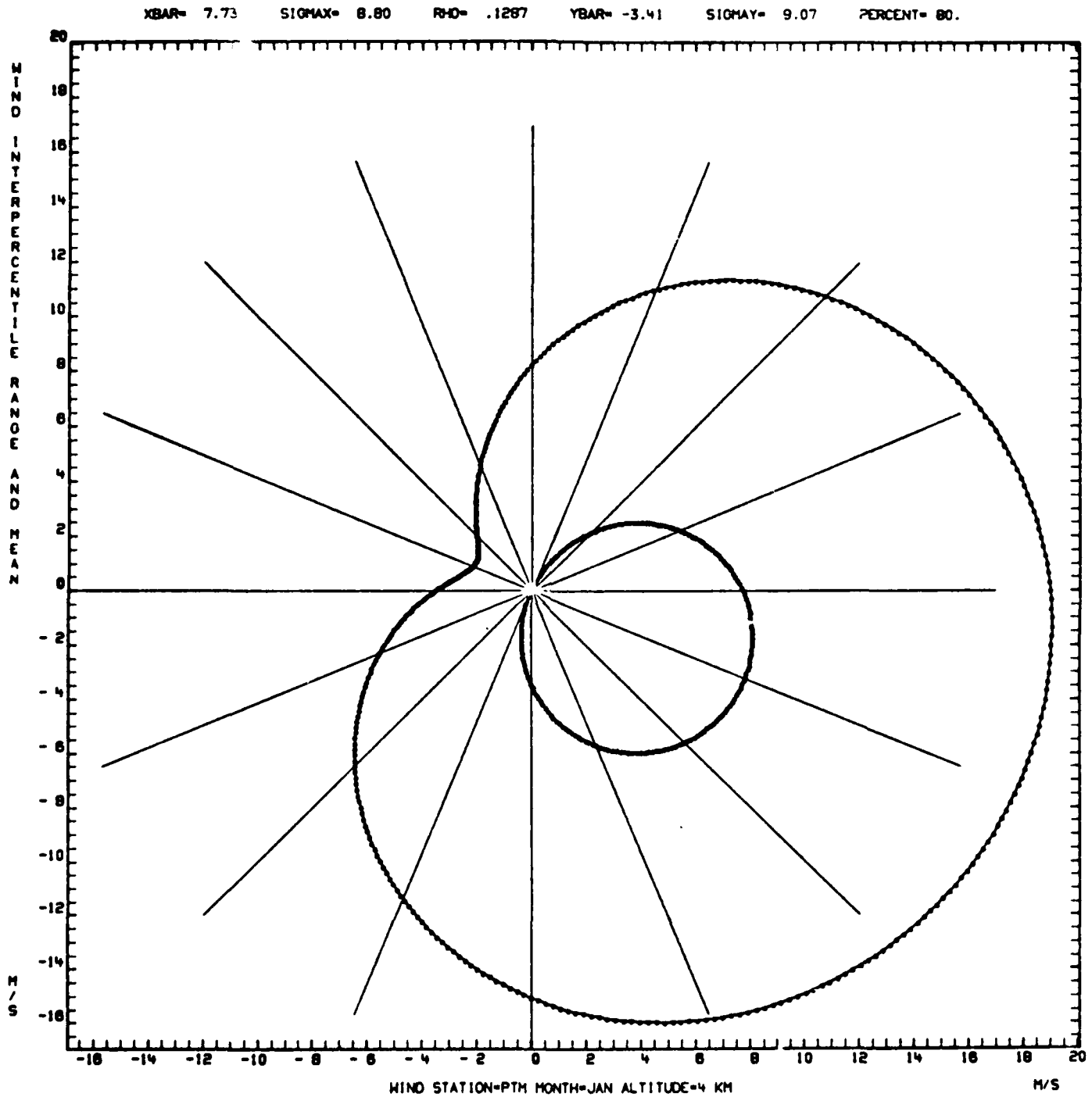

XBAR= 7.73 SIGMAX= 8.80 RHO= .1287 YBAR= -3.41 SIGMAY= 9.07 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
WIND STATION=PTH MONTH=JAN ALTITUDE=4 KM
M/S

Figure A-21.

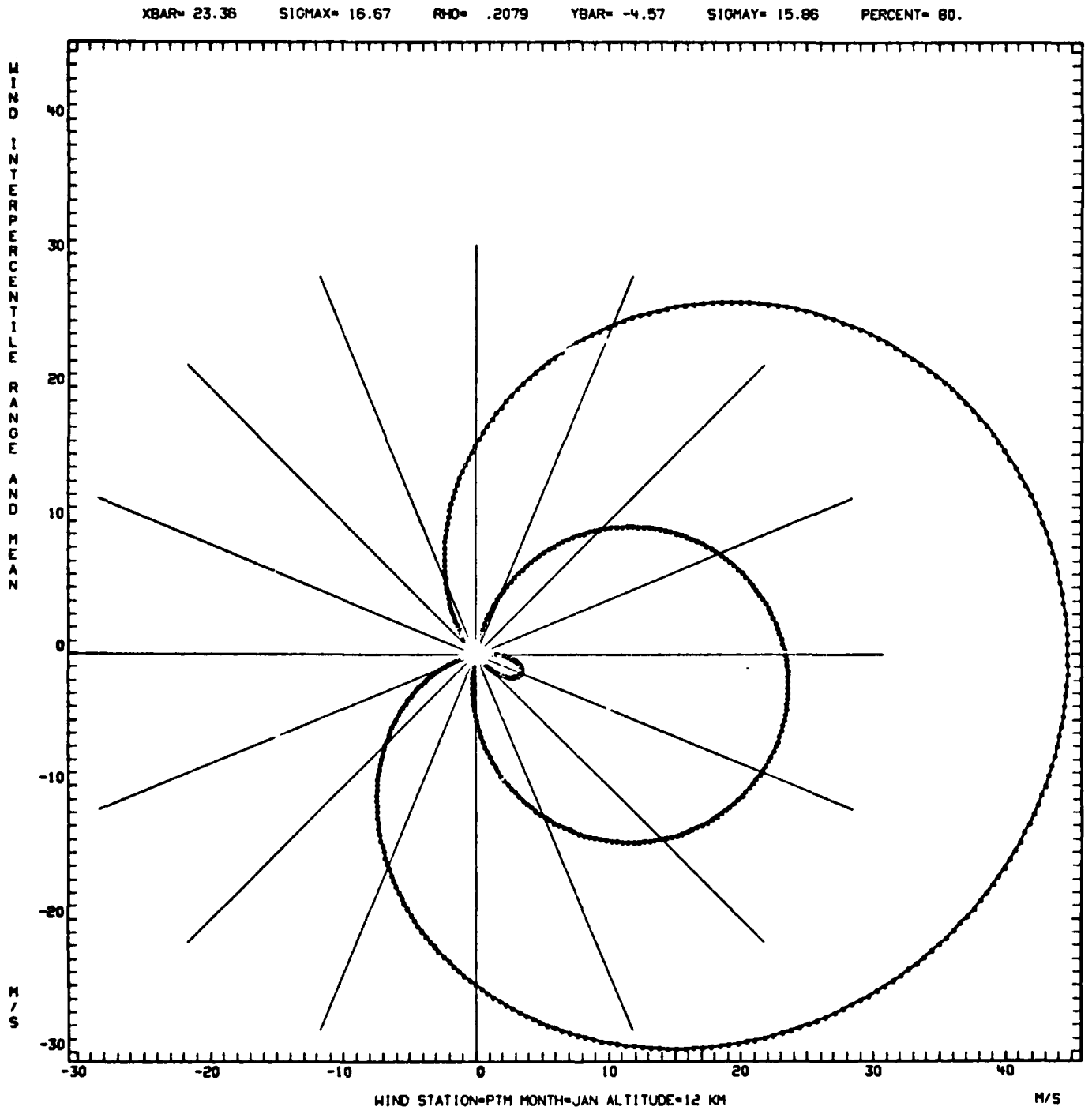

XBAR= 23.38 SIGMAX= 16.67 RHO= .2079 YBAR= -4.57 SIGMAY= 15.86 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
40
30
20
10
0
-10
-20
-30
-30 -20 -10 0 10 20 30 40
WIND STATION=PTM MONTH=JAN ALTITUDE=12 KM
M/S

Figure A-22.

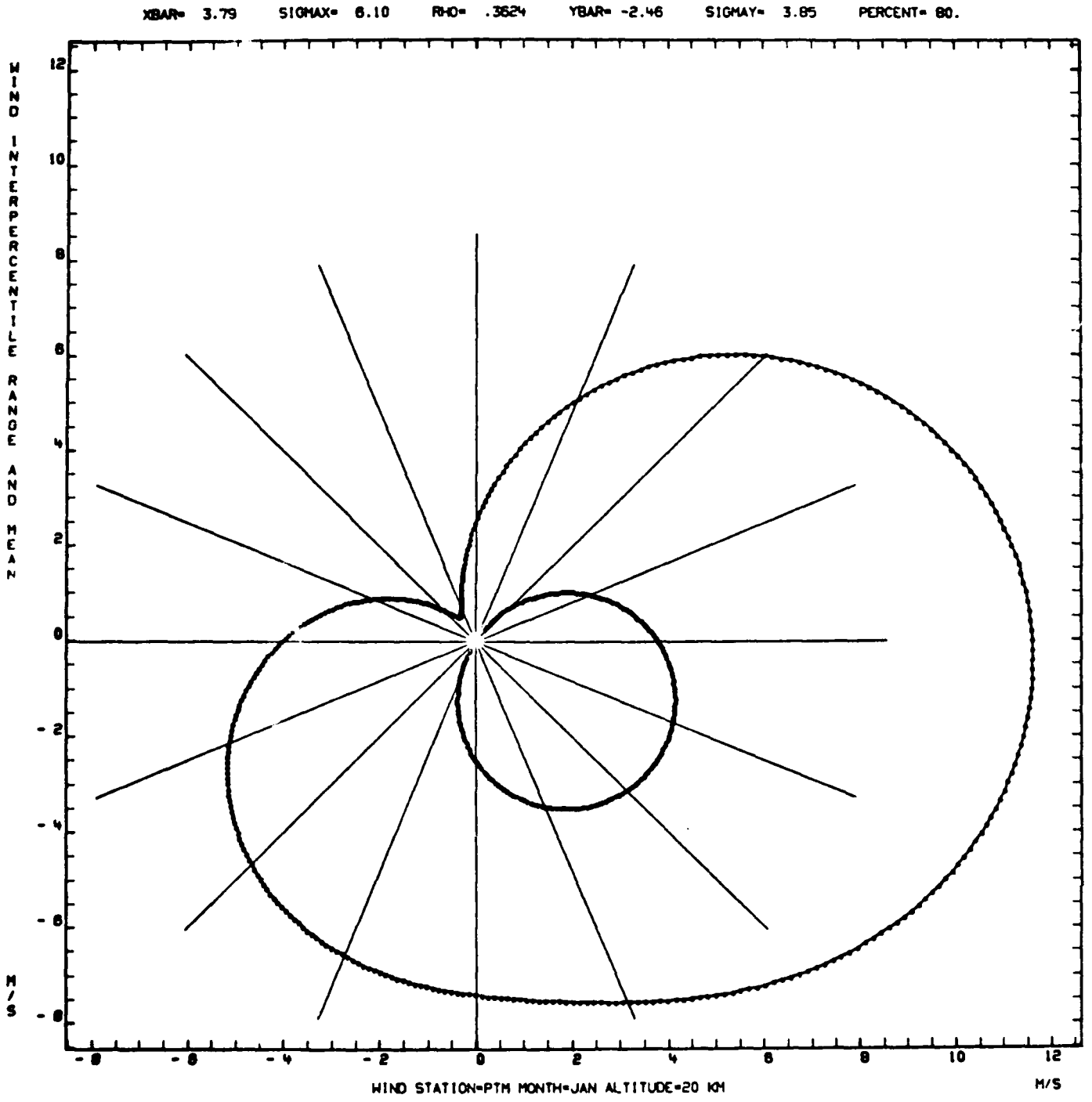

XBAR= 3.79 SIGMAX= 6.10 RHO= .3624 YBAR= -2.46 SIGMAY= 3.85 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
12
10
8
6
4
2
0
-2
-4
-6
-8
-8 -6 -4 -2 0 2 4 6 8 10 12
M/S
WIND STATION=PTM MONTH=JAN ALTITUDE=20 KM

Figure A-23.

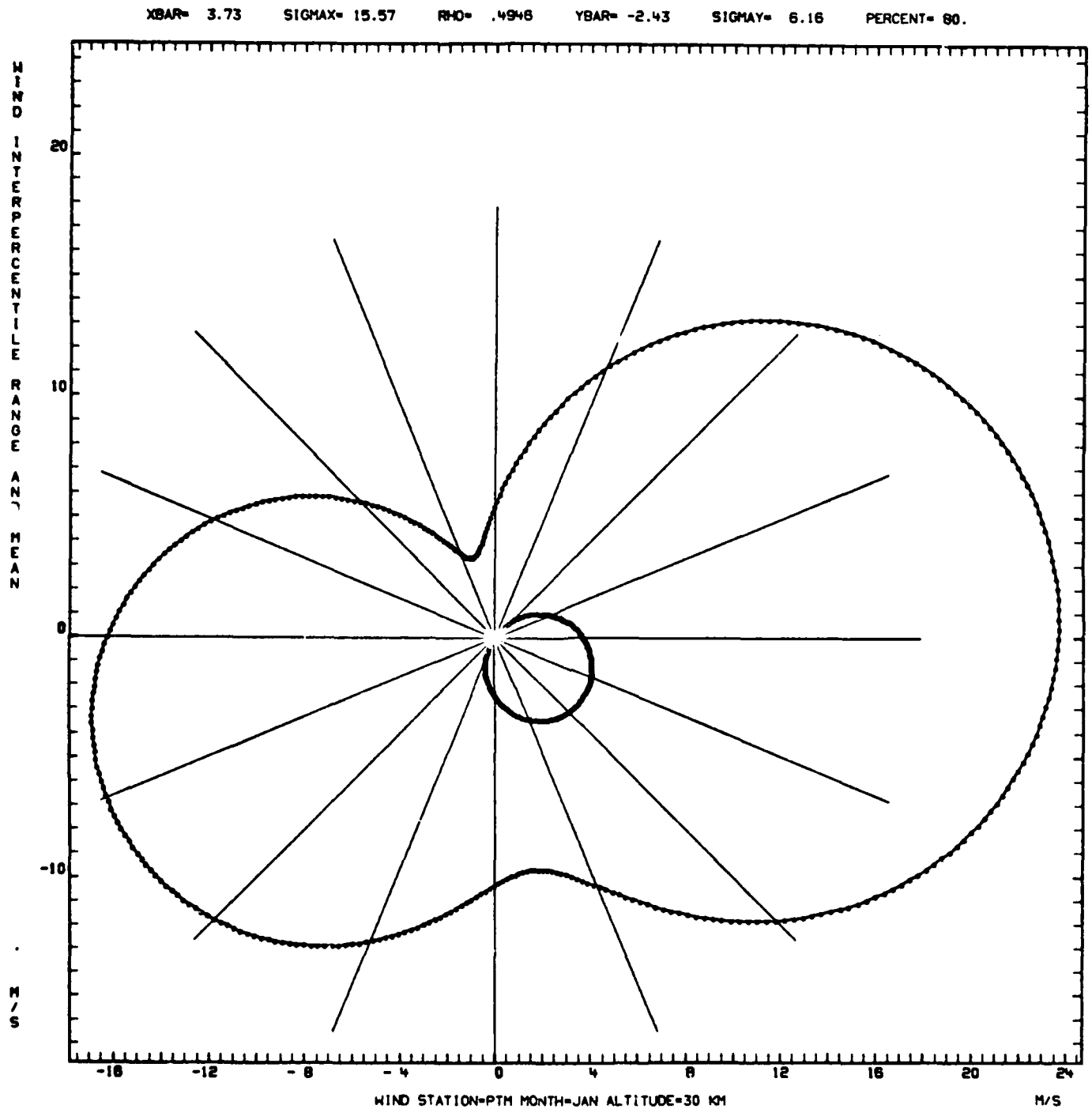

XBAR= 3.73 SIGMAX= 15.57 RHO= .4946 YBAR= -2.43 SIGMAY= 6.16 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
20
10
0
-10
-16
-12
-8
-4
0
4
8
12
16
20
24
WIND STATION=PTM MONTH=JAN ALTITUDE=30 KM
M/S

Figure A-24.

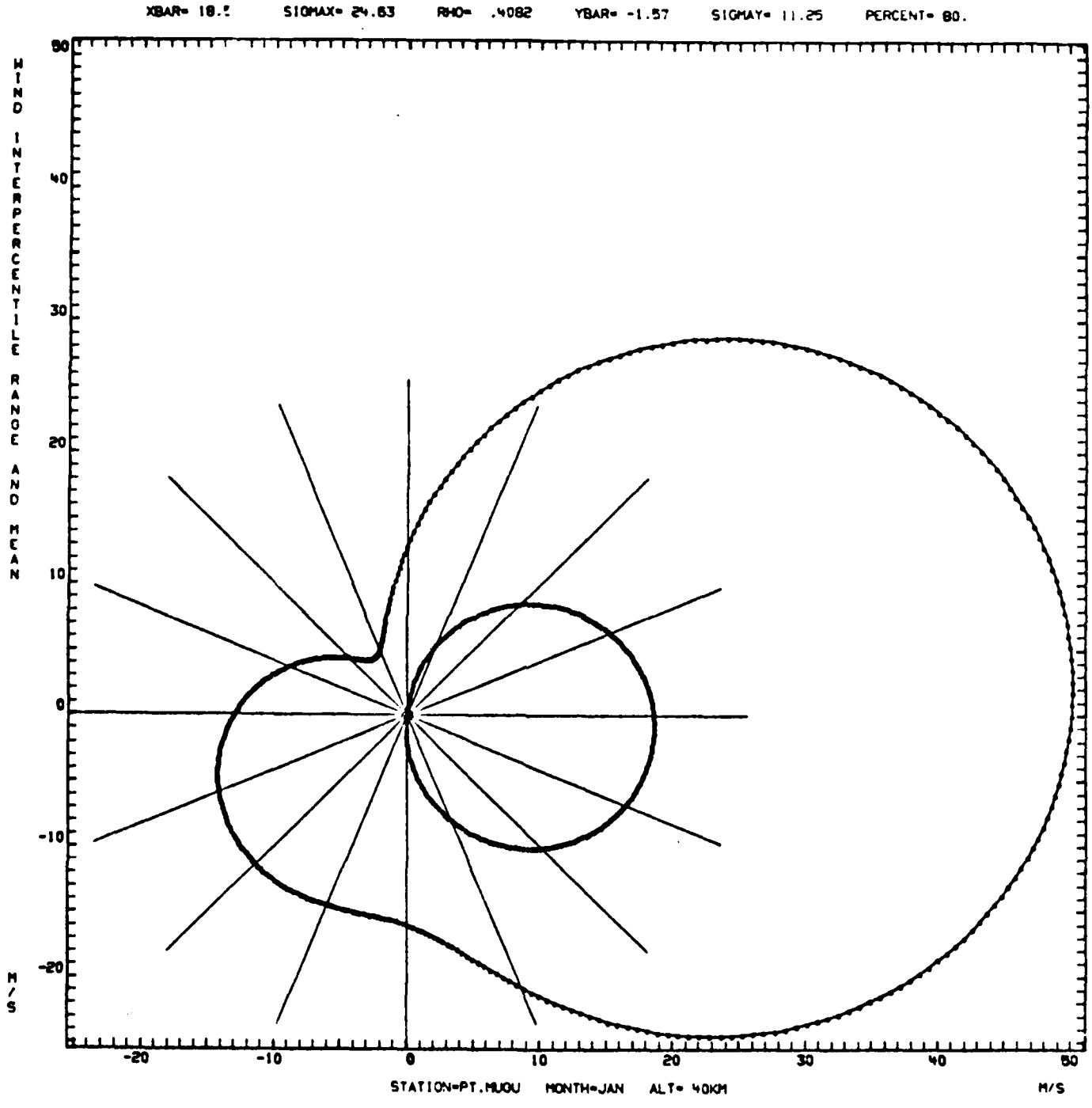

XBAR= 18.5
SIGMAX= 24.83
RHO= .4082
YBAR= -1.57
SIGMAY= 11.25
PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
STATION=PT.MUGU MONTH=JAN ALT= 40KM
M/S

Figure A-25.

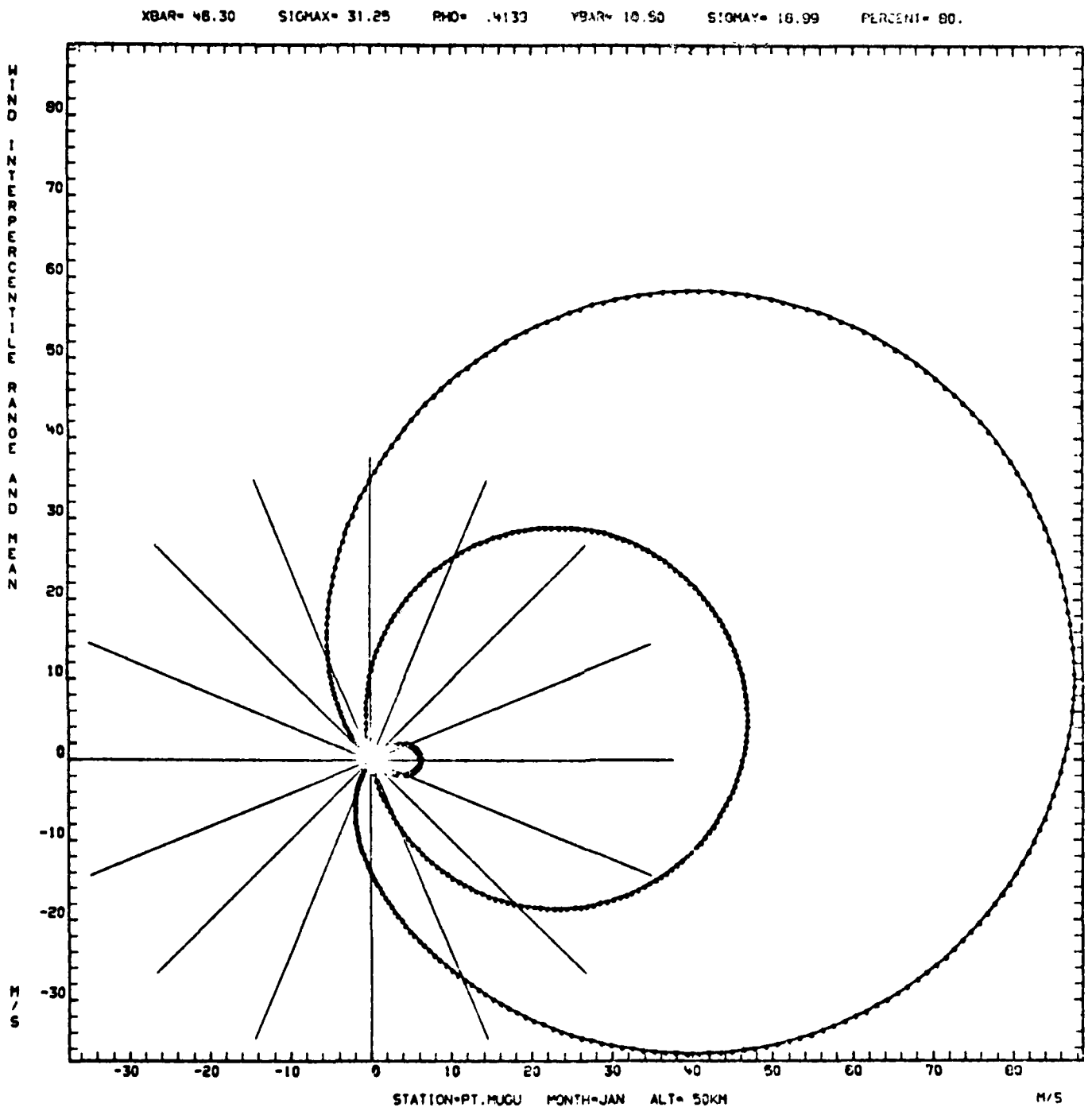

XBAR= 46.30 SIGMAX= 31.25 RHO= .4133 YBAR= 10.50 SIGMAY= 18.99 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
80
70
60
50
40
30
20
10
0
-10
-20
-30
-30 -20 -10 0 10 20 30 40 50 60 70 80
STATION=PT.MUGU MONTH=JAN ALT= 50KM
M/S

Figure A-26.

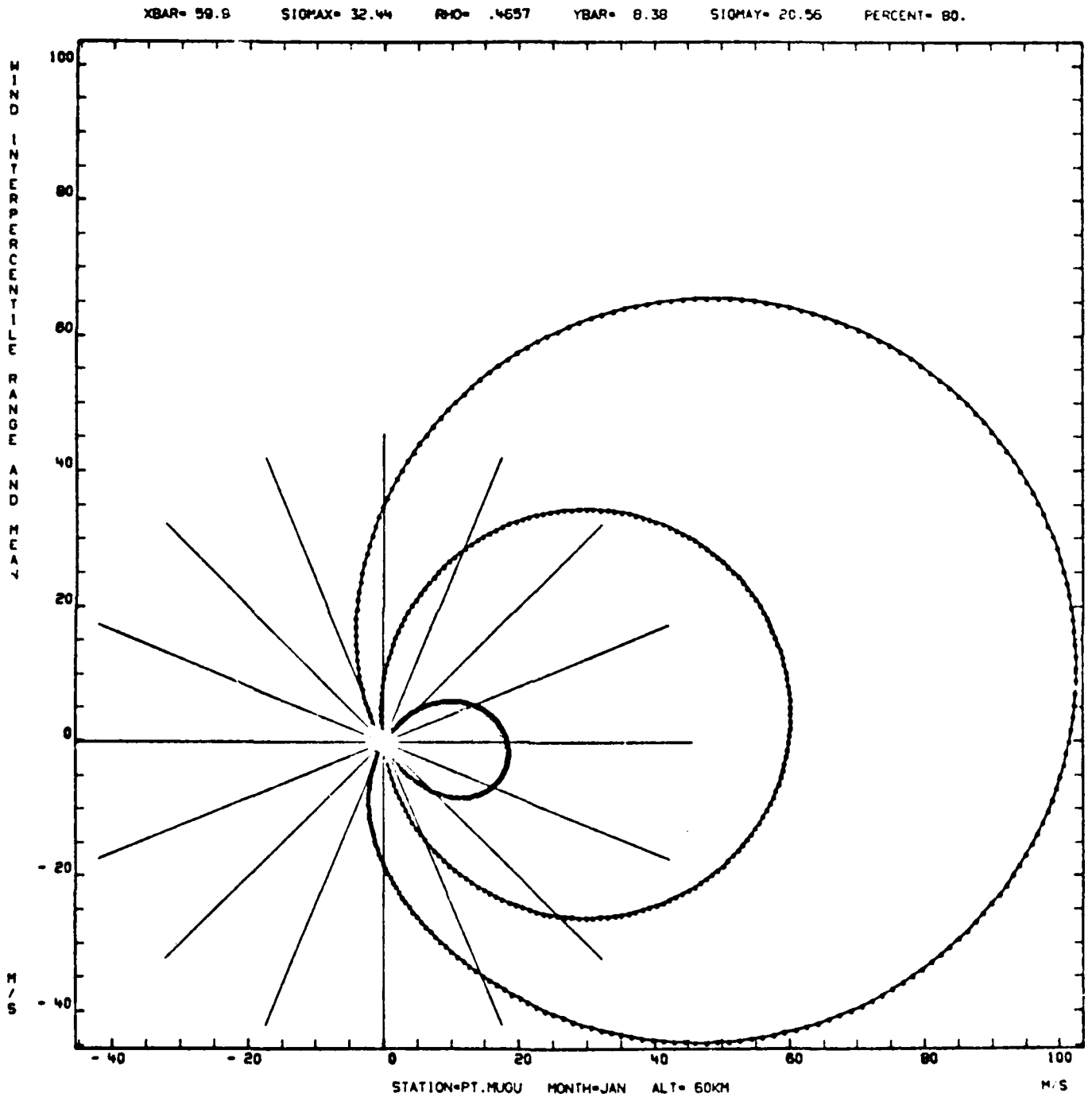

XBAR= 59.8 SIGMAX= 32.44 RHO= .4657 YBAR= 8.38 SIGMAY= 20.56 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
100
80
60
40
20
0
- 20
- 40
- 40
- 20
0
20
40
60
80
100
STATION=PT.MUGU MONTH=JAN ALT= 60KM
M/S

Figure A-27.

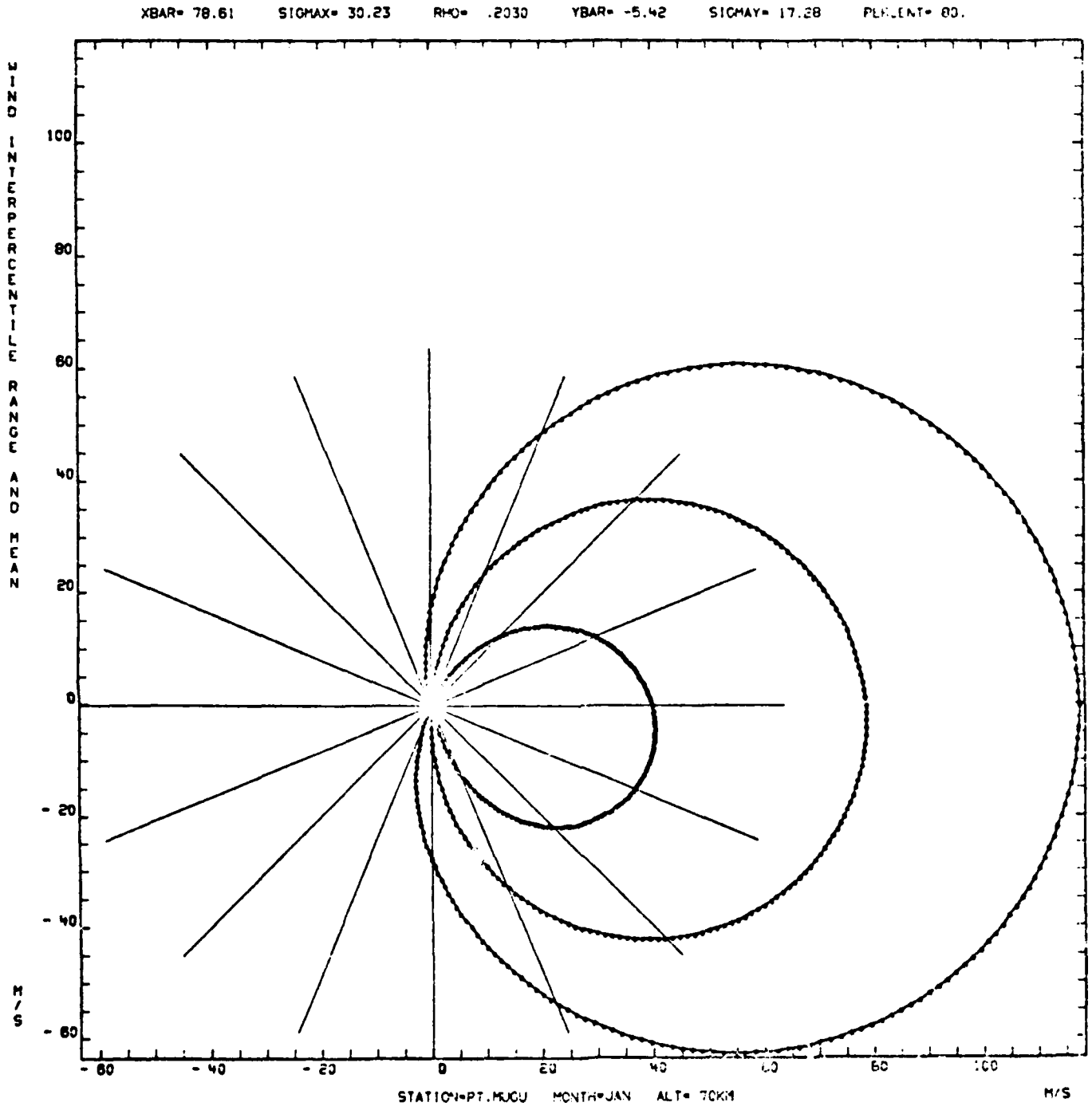

XBAR= 78.61 SIGMAX= 30.23 RHO= .2030 YBAR= -5.42 SIGMAY= 17.28 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
100
80
60
40
20
0
- 20
- 40
- 60
M/S
- 60
- 40
- 20
0
20
40
60
80
100
M/S
STATION=PT.MUGU MONTH=JAN ALT= 70KM

Figure A-28.

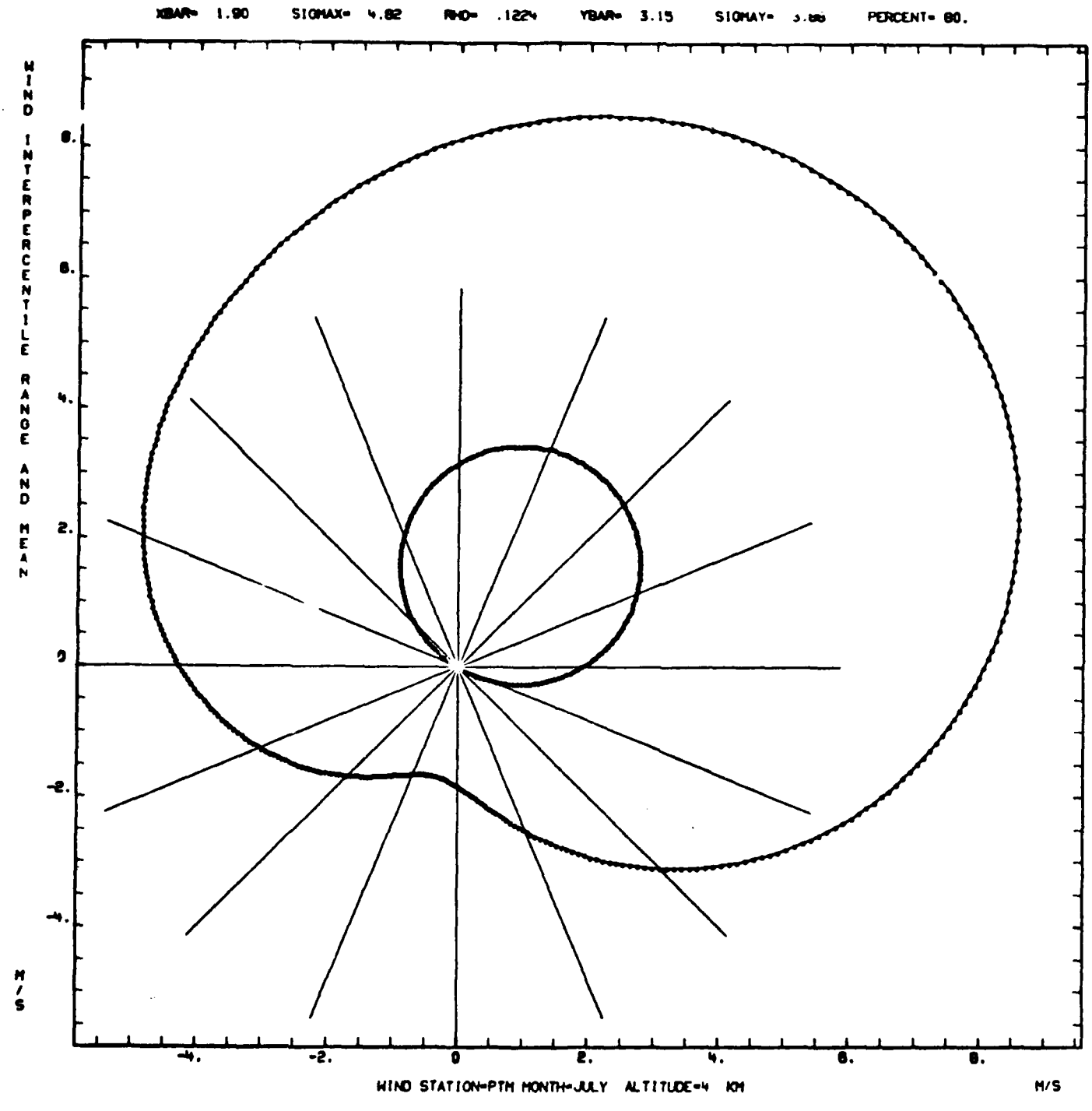

XBAR= 1.90 SIGMAX= 4.82 RHO= .122 YBAR= 3.15 SIGMAY= 3.88 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
8.
6.
4.
2.
0
-2.
-4.
-4.
-2.
0
2.
4.
6.
8.
WIND STATION=PTH MONTH=JULY ALTITUDE=4 KM
M/S

Figure A-29.

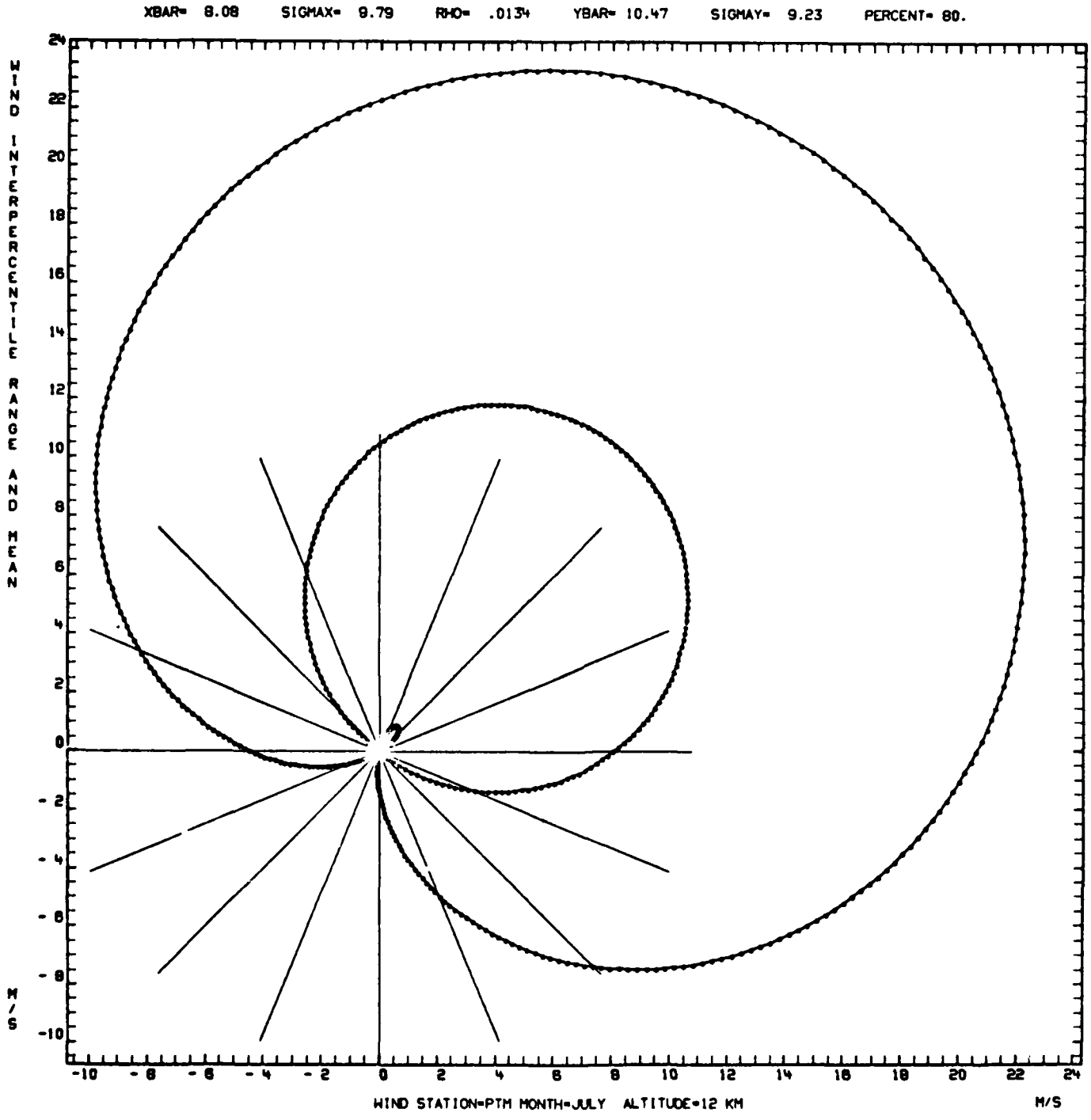

XBAR= 8.08 SIGMAX= 9.79 RHO= .0134 YBAR= 10.47 SIGMAY= 9.23 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
-10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16 18 20 22 24
WIND STATION=PTM MONTH=JULY ALTITUDE=12 KM
M/S

Figure A-30.

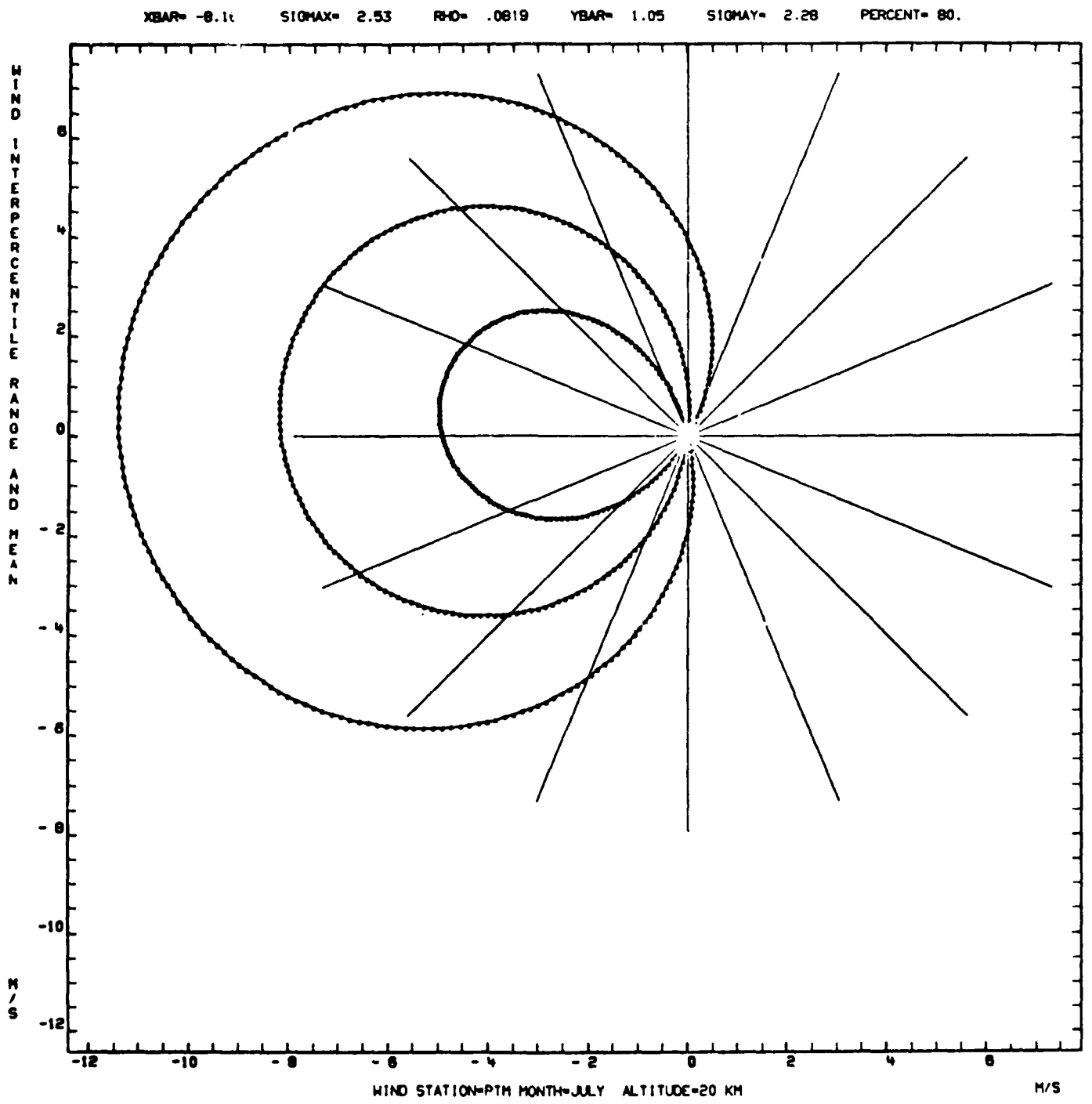

XBAR= -0.1t
SIGMAX= 2.53
RHO= .0819
YBAR= 1.05
SIGMAY= 2.28
PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
6
4
2
0
-2
-4
-6
-8
-10
-12
-12
-10
-8
-6
-4
-2
0
2
4
6
WIND STATION=PTH MONTH=JULY ALTITUDE=20 KM
M/S

Figure A-31.

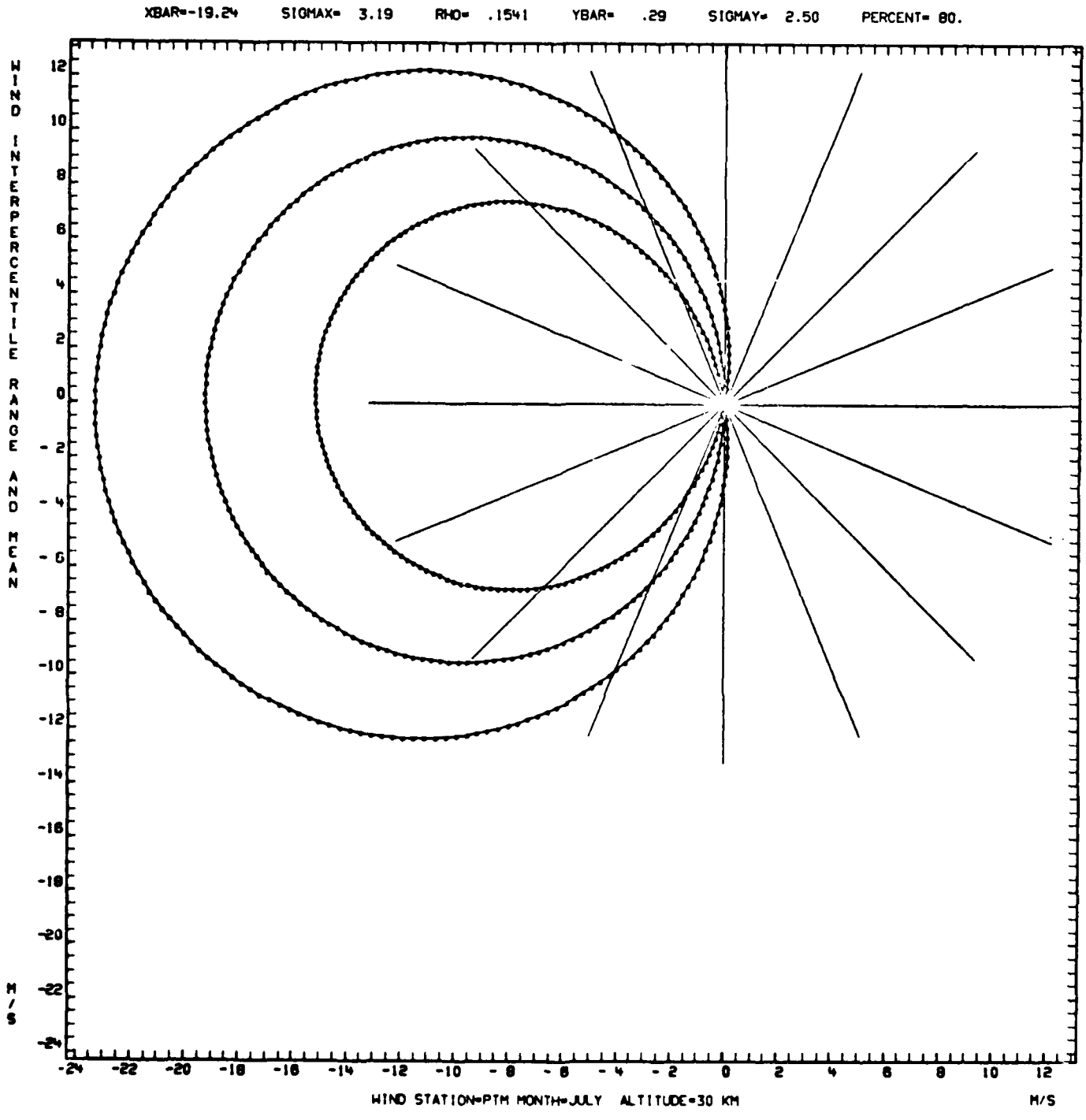

XBAR=-19.24 SIGMAX= 3.19 RHO= .1541 YBAR= .29 SIGMAY= 2.50 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
WIND STATION=PTM MONTH=JULY ALTITUDE=30 KM
M/S

Figure A-32.

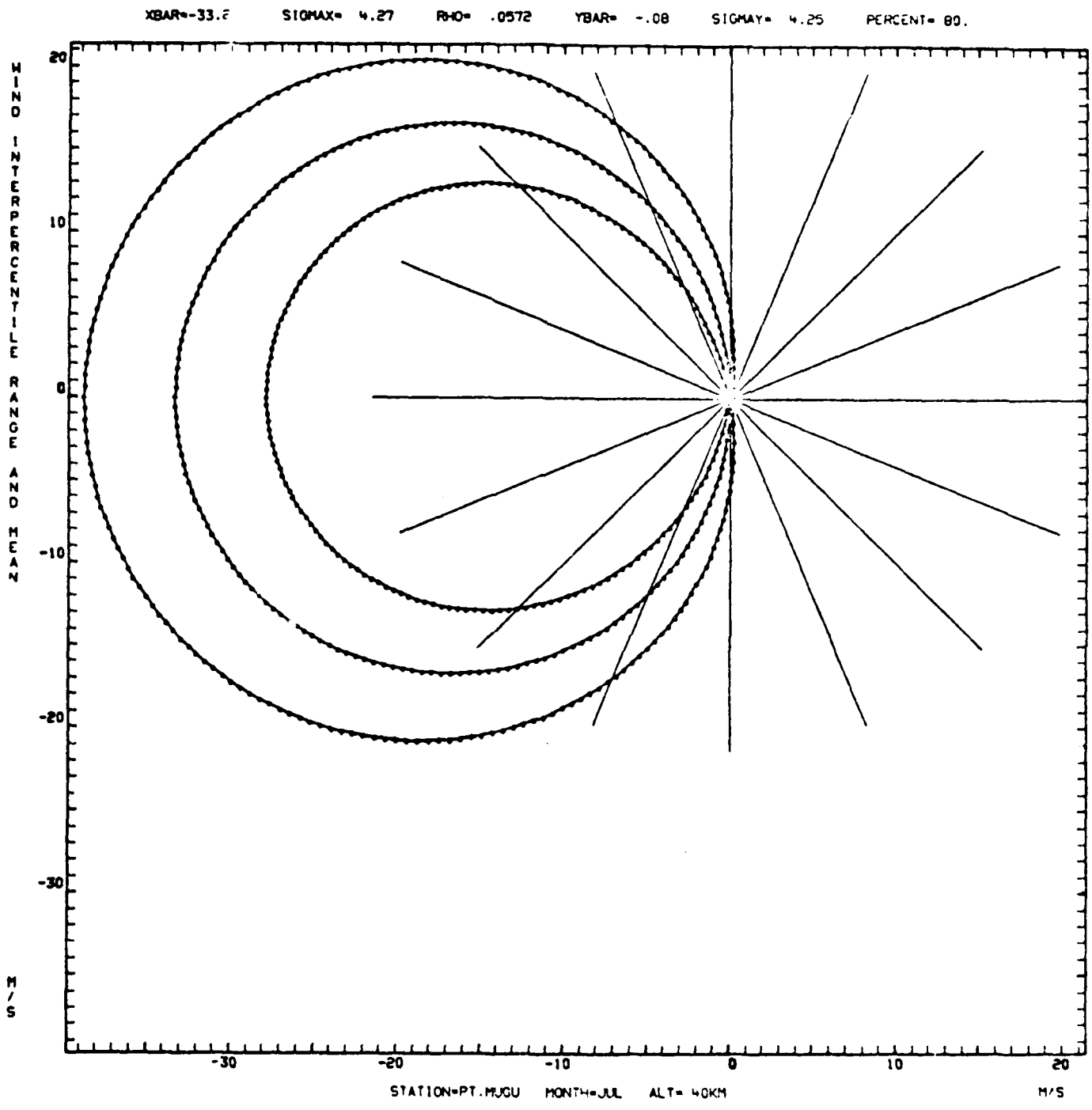

XBAR=-33.2
SIGMAX= 4.27
RHO= .0572
YBAR= -.08
SIGMAY= 4.25
PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
20
10
0
-10
-20
-30
-30
-20
-10
0
10
20
STATION=PT.MUGU MONTH=JUL ALT= 40KM
M/S

Figure A-33.

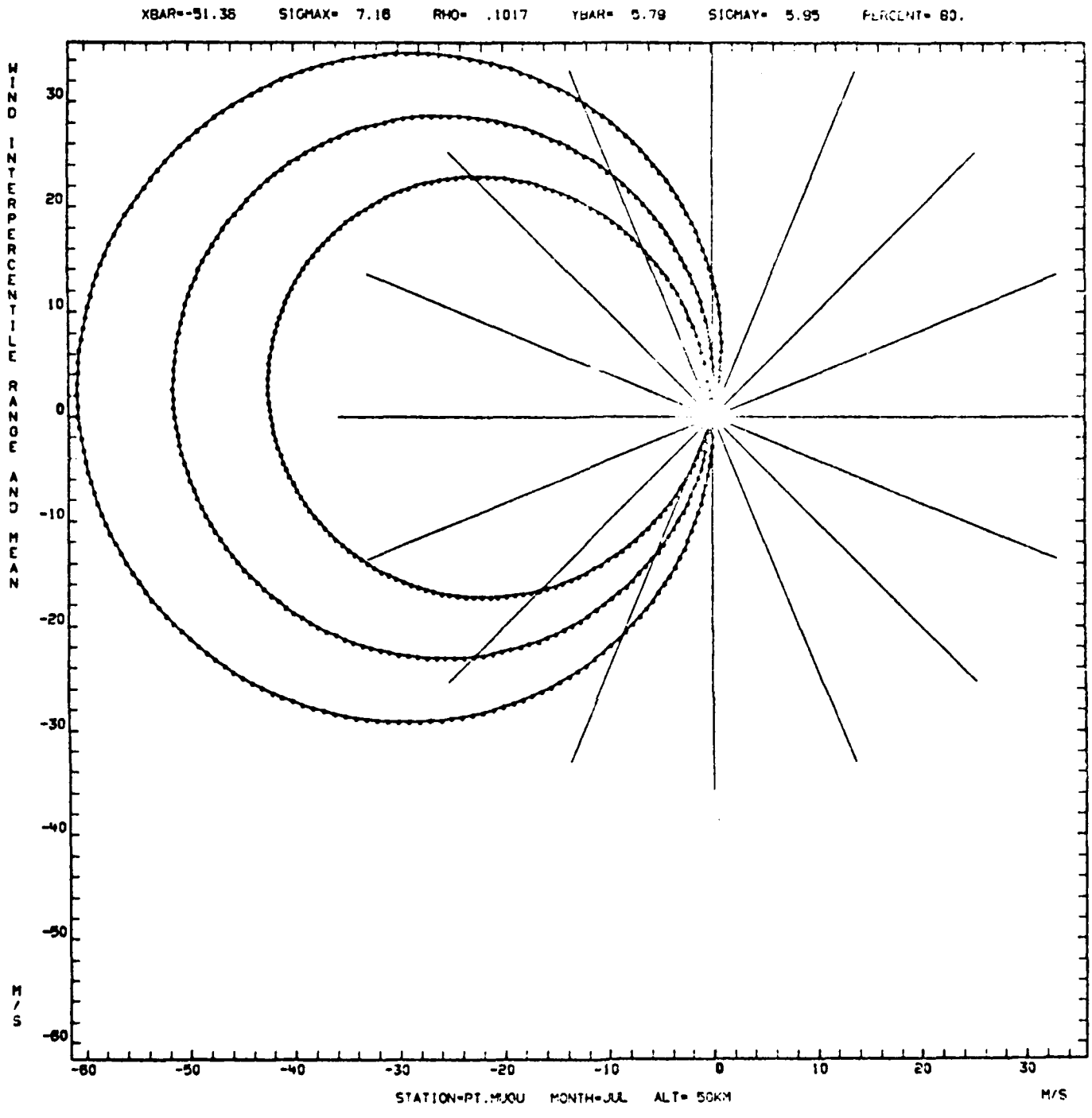

XBAR=-51.38 SIGMAX= 7.18 RHO= .1017 YBAR= 5.79 SIGMAY= 5.95 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
30
20
10
0
-10
-20
-30
-40
-50
-60
-60 -50 -40 -30 -20 -10 0 10 20 30
STATION=PT.MUGU MONTH=JUL ALT= 50KM
M/S

Figure A-34.

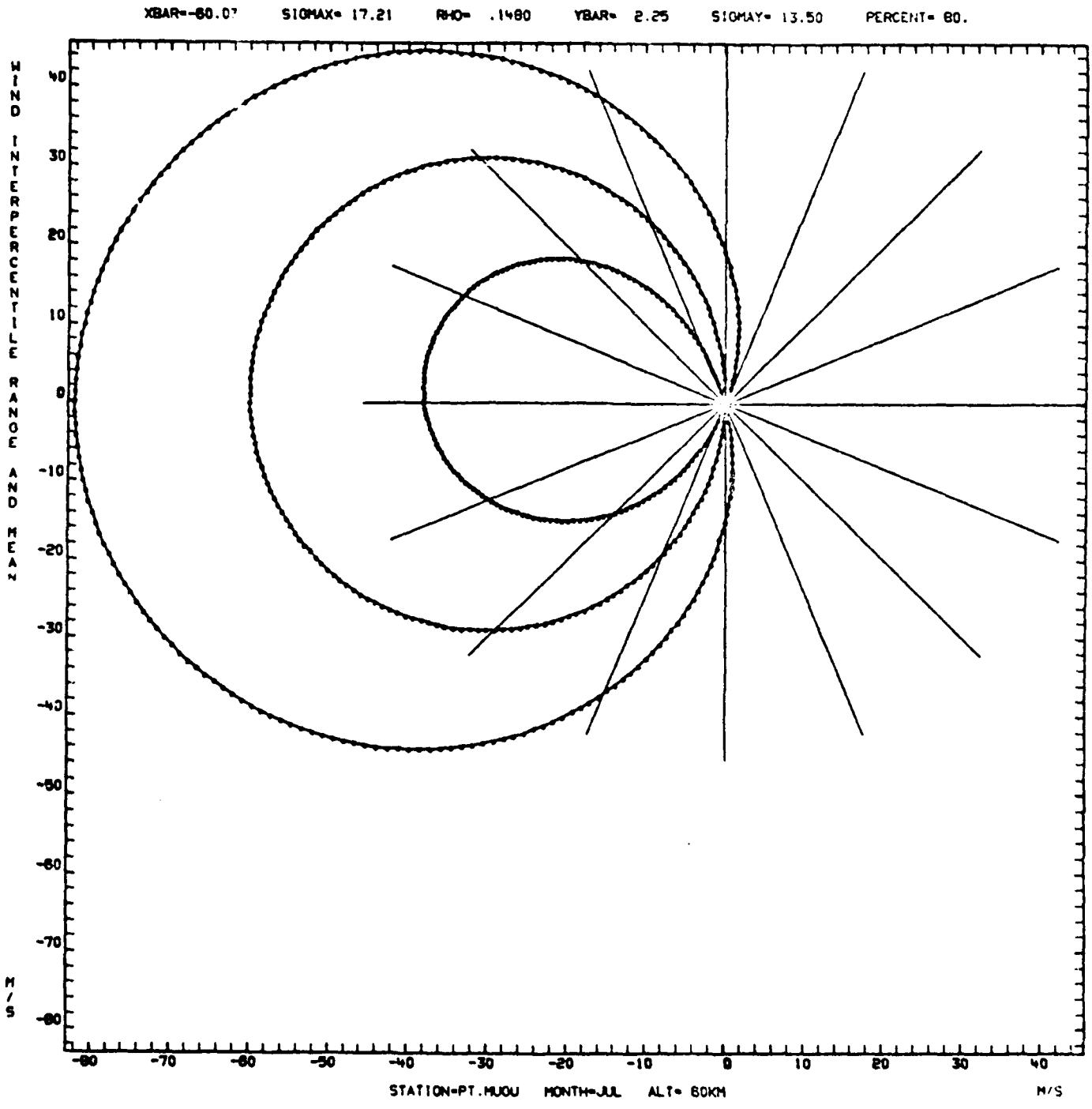

XBAR=-60.07 SIGMAX= 17.21 RHO= .1480 YBAR= 2.25 SIGMAY= 13.50 PERCENT= 80.
WIND INTERPERCENTILE RANGE AND MEAN
M/S
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40
STATION=PT.MUGU MONTH=JUL ALT= 60KM
M/S

Figure A-35.

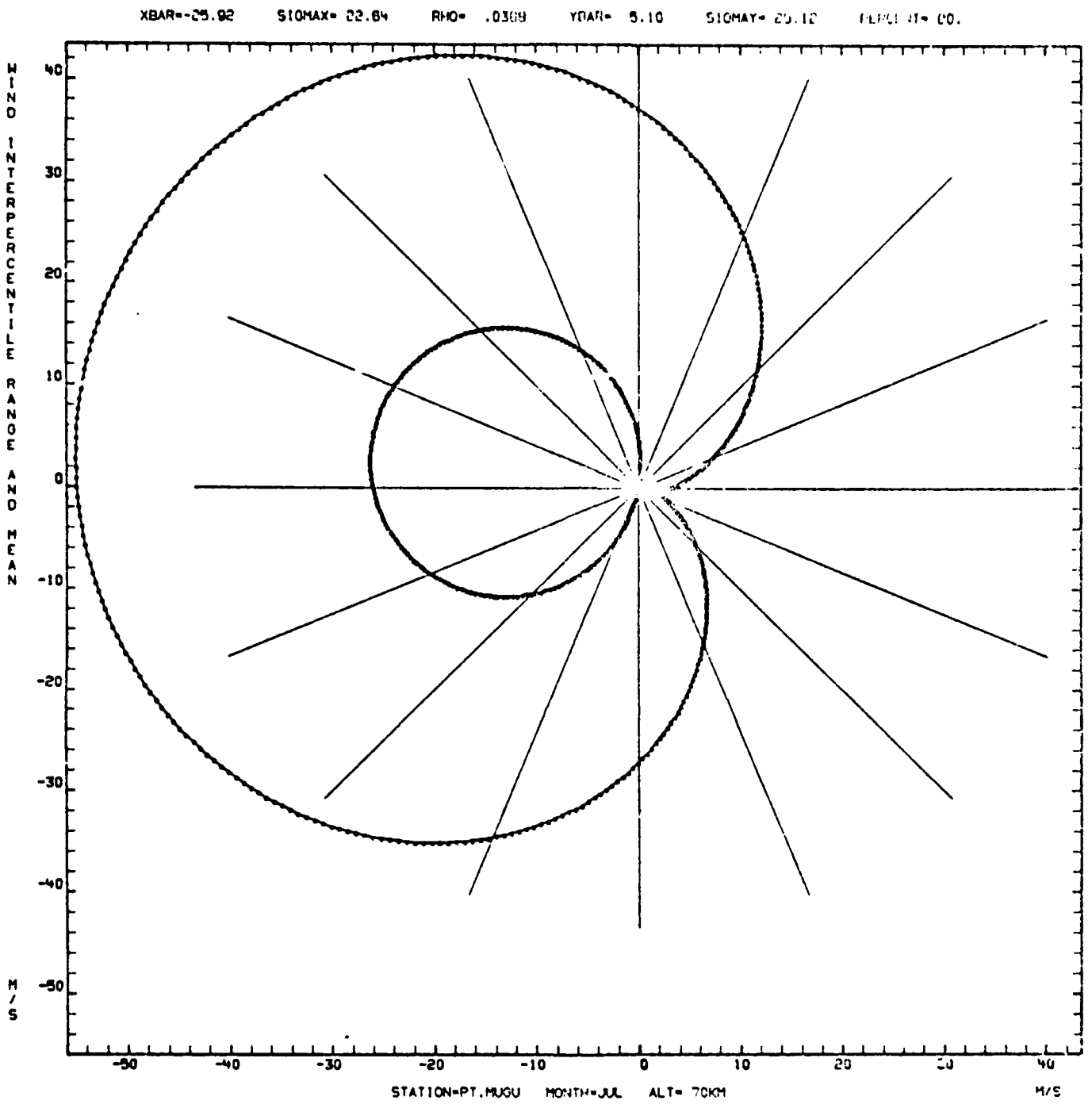

XBAR=-25.92 SIGMAX= 22.64 RHO= .0389 YBAR= 5.10 SIGMAY= 20.12
WIND INTERPERCENTILE RANGE AND MEAN
M/S
STATION=PT.MUGU MONTH=JUL ALT= 70KM
M/S

Figure A-36.

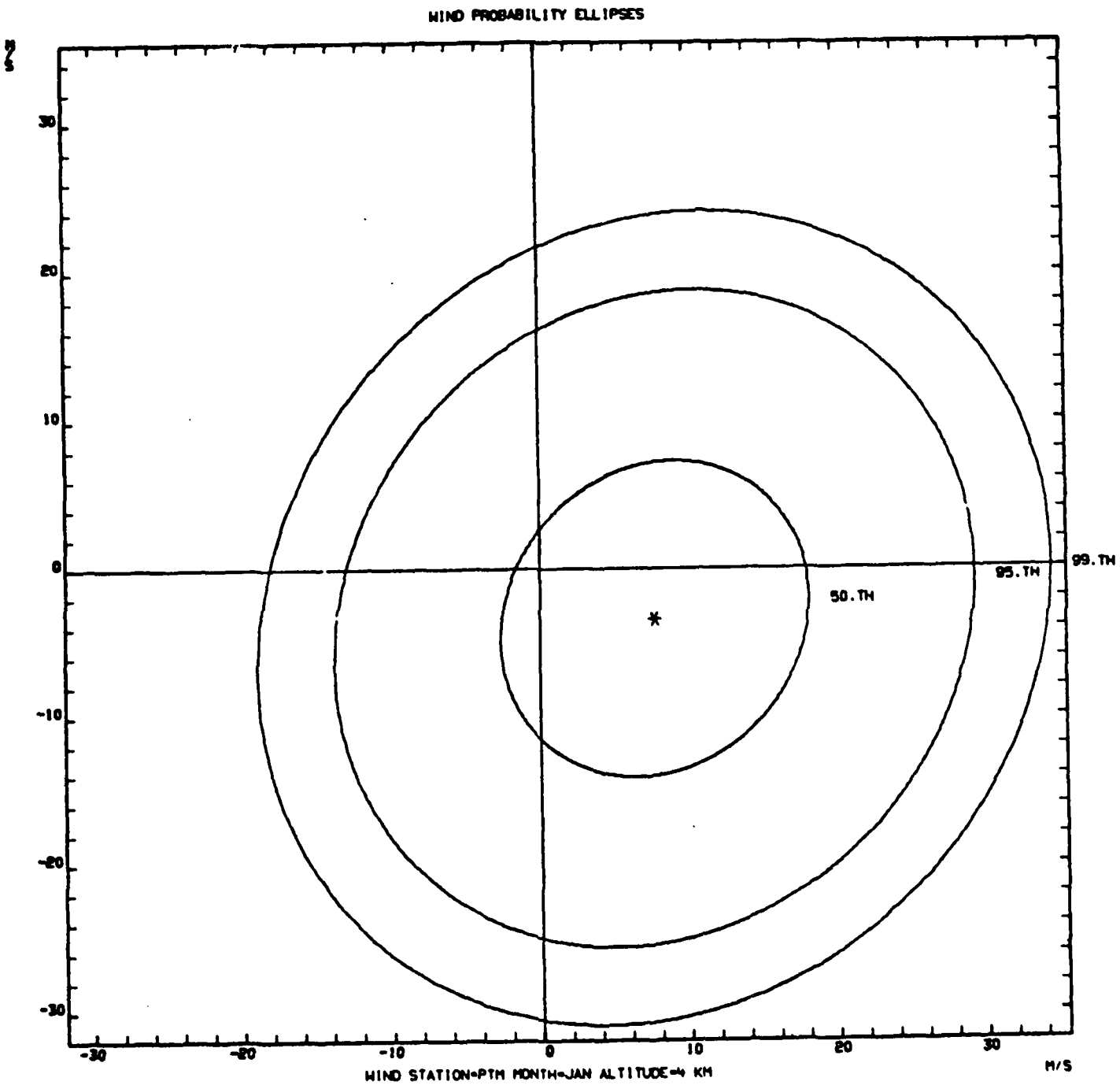

WIND PROBABILITY ELLIPSES
M/S
30
20
10
0
-10
-20
-30
50.TH
95.TH
99.TH
-30
-20
-10
0
10
20
30
M/S
WIND STATION=PTH MONTH=JAN ALTITUDE=4 KM

Figure A-37.

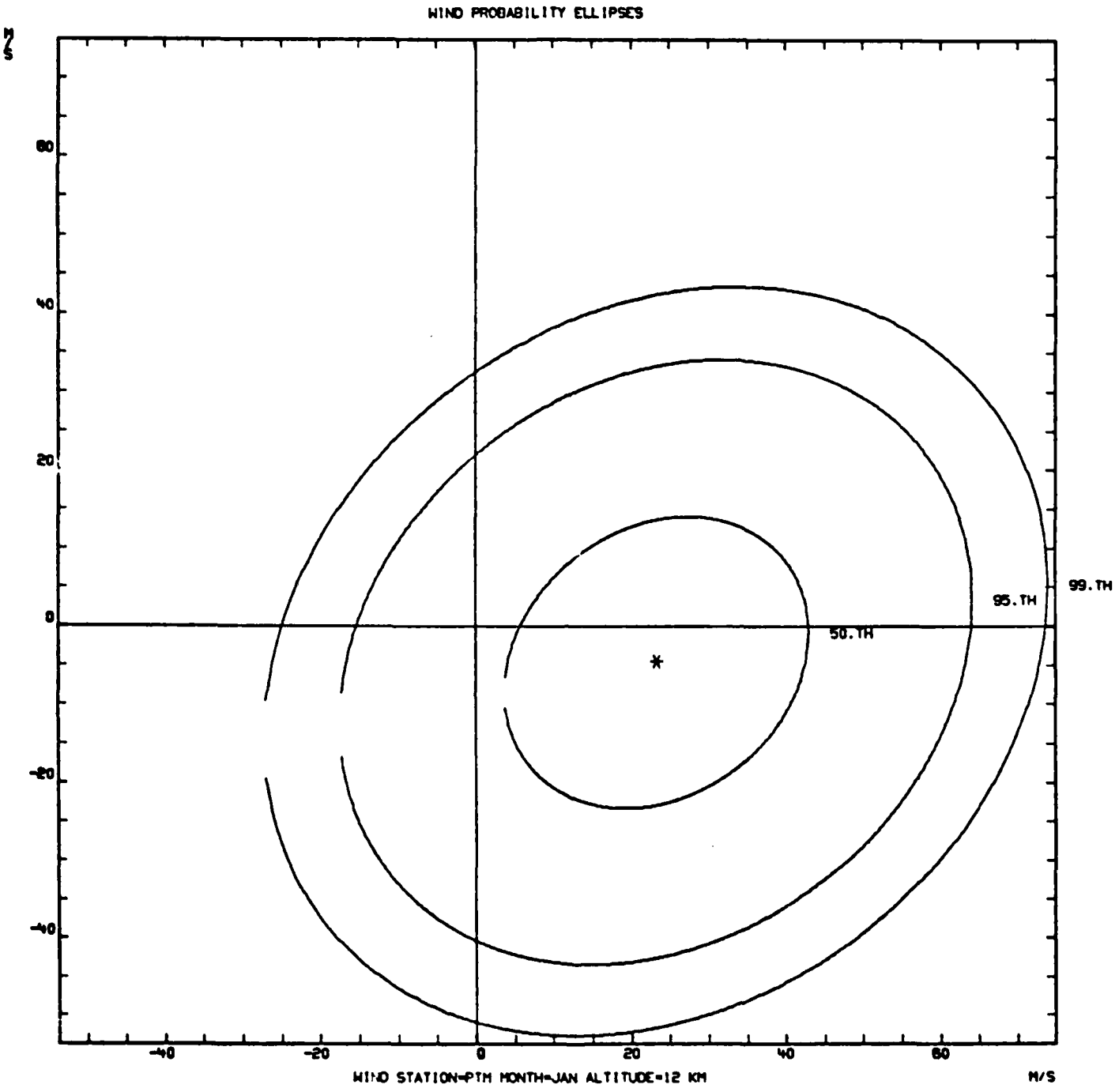

WIND PROBABILITY ELLIPSES
M/S
60
40
20
0
-20
-40
99.TH
95.TH
50.TH
-40
-20
0
20
40
60
WIND STATION=PTM MONTH=JAN ALTITUDE=12 KM
M/S

Figure A-38.

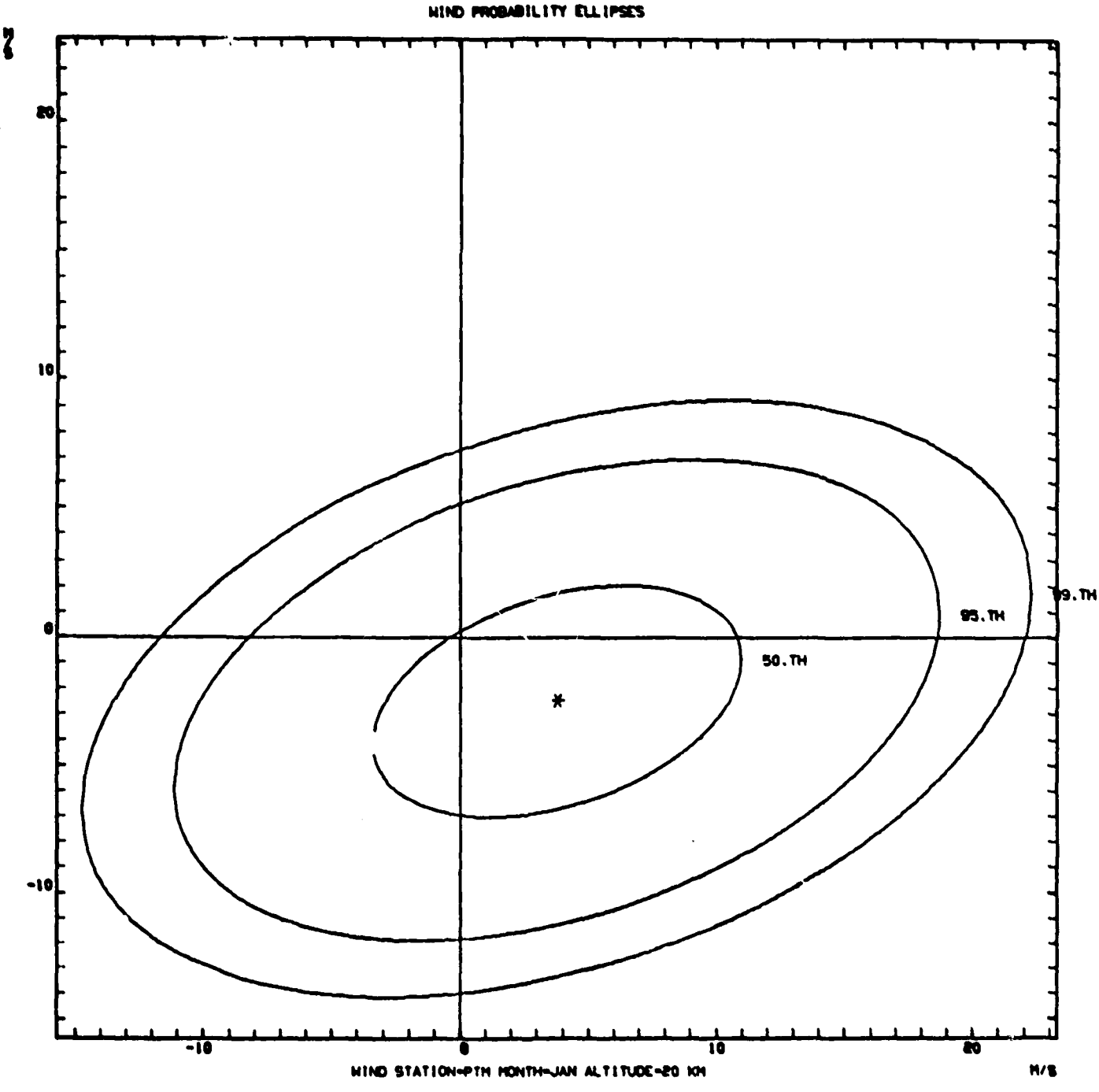

WIND PROBABILITY ELLIPSES
20
10
0
-10
-10
0
10
20
99.TH
95.TH
50.TH
WIND STATION=PTH MONTH=JAN ALTITUDE=20 KM
M/S

Figure A-39.

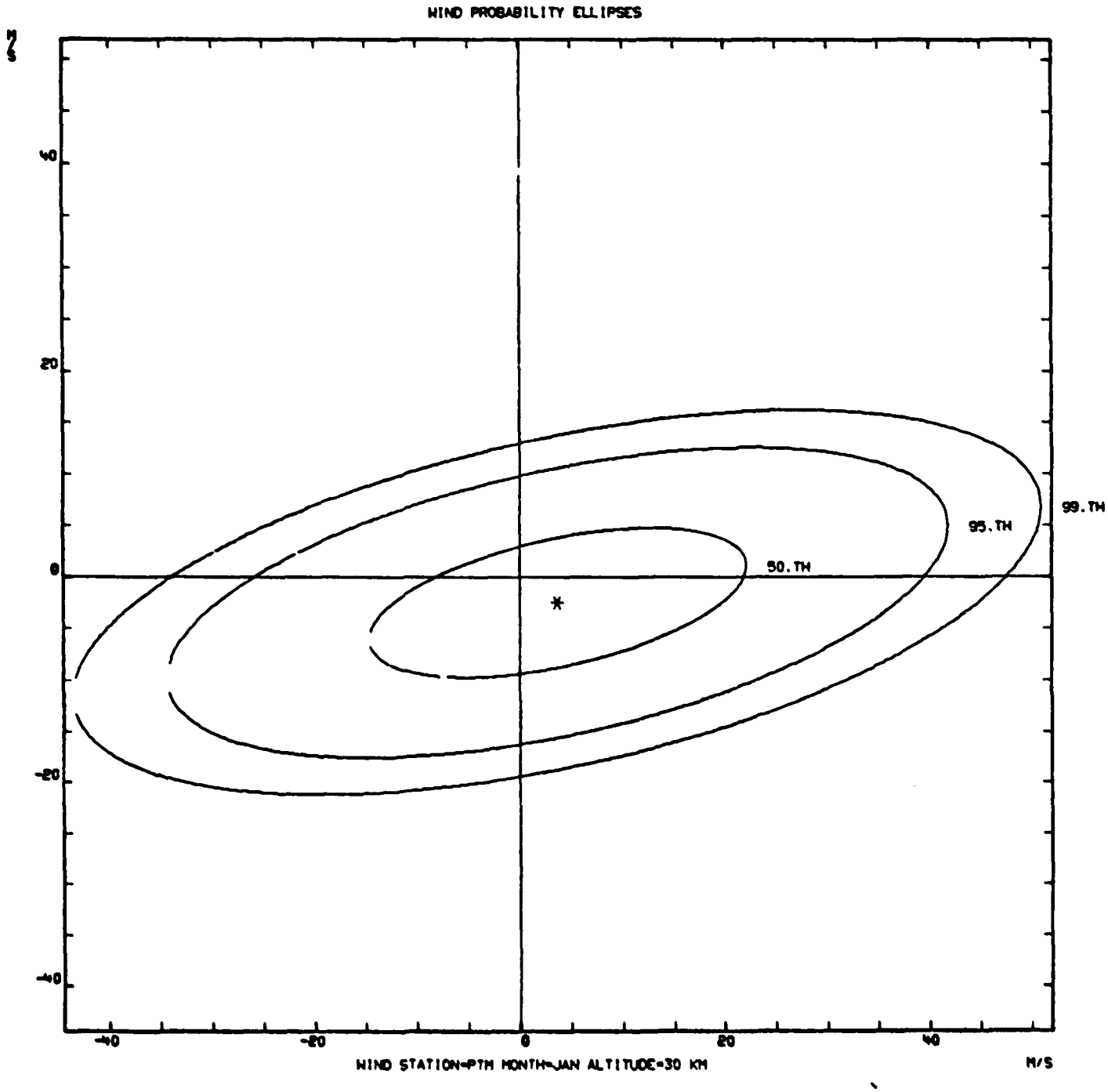

WIND PROBABILITY ELLIPSES
N
S
40
20
0
-20
-40
-40
-20
0
20
40
99.TH
95.TH
50.TH
WIND STATION=PTH MONTH=JAN ALTITUDE=30 KM
M/S

Figure A-40.

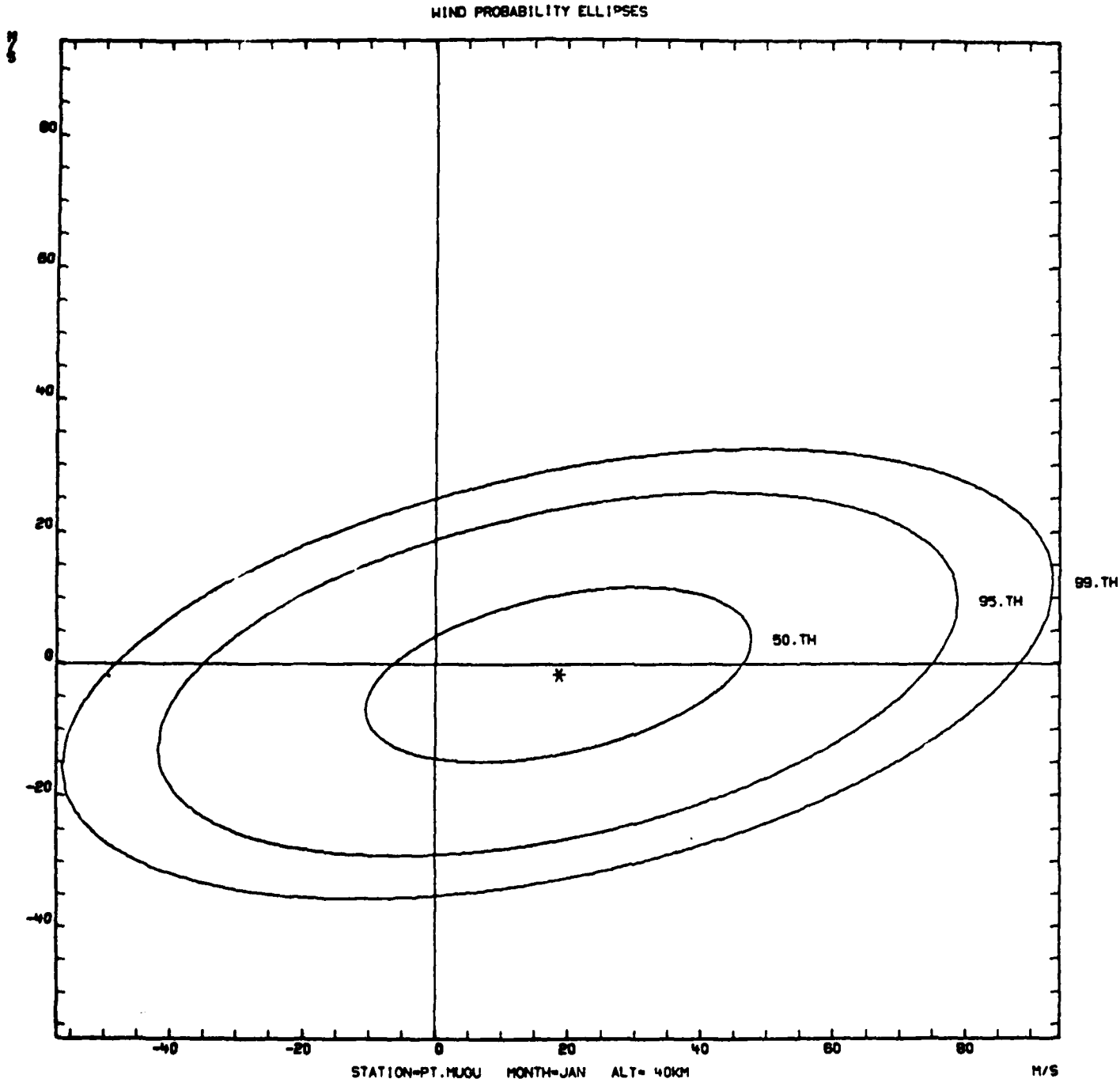

WIND PROBABILITY ELLIPSES
M/S
80
60
40
20
0
-20
-40
99.TH
95.TH
50.TH
-40
-20
0
20
40
60
80
STATION=PT.MUGU MONTH=JAN ALT= 40KM
M/S

Figure A-41.

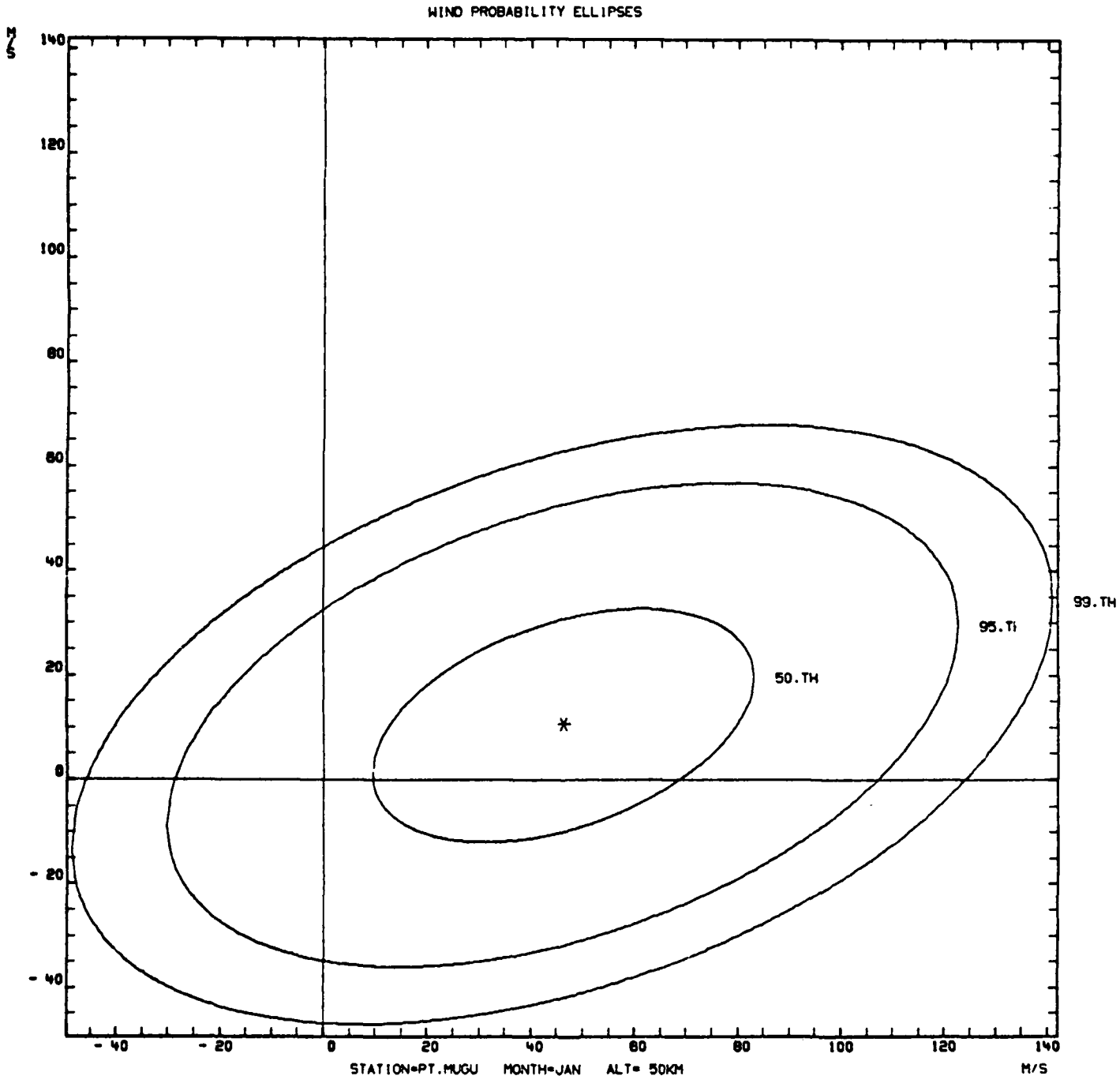

WIND PROBABILITY ELLIPSES
M/S
140
120
100
80
60
40
20
0
- 20
- 40
99.TH
95.TI
50.TH
- 40
- 20
0
20
40
60
80
100
120
140
STATION=PT.MUGU MONTH=JAN ALT= 50KM
M/S

Figure A-42.

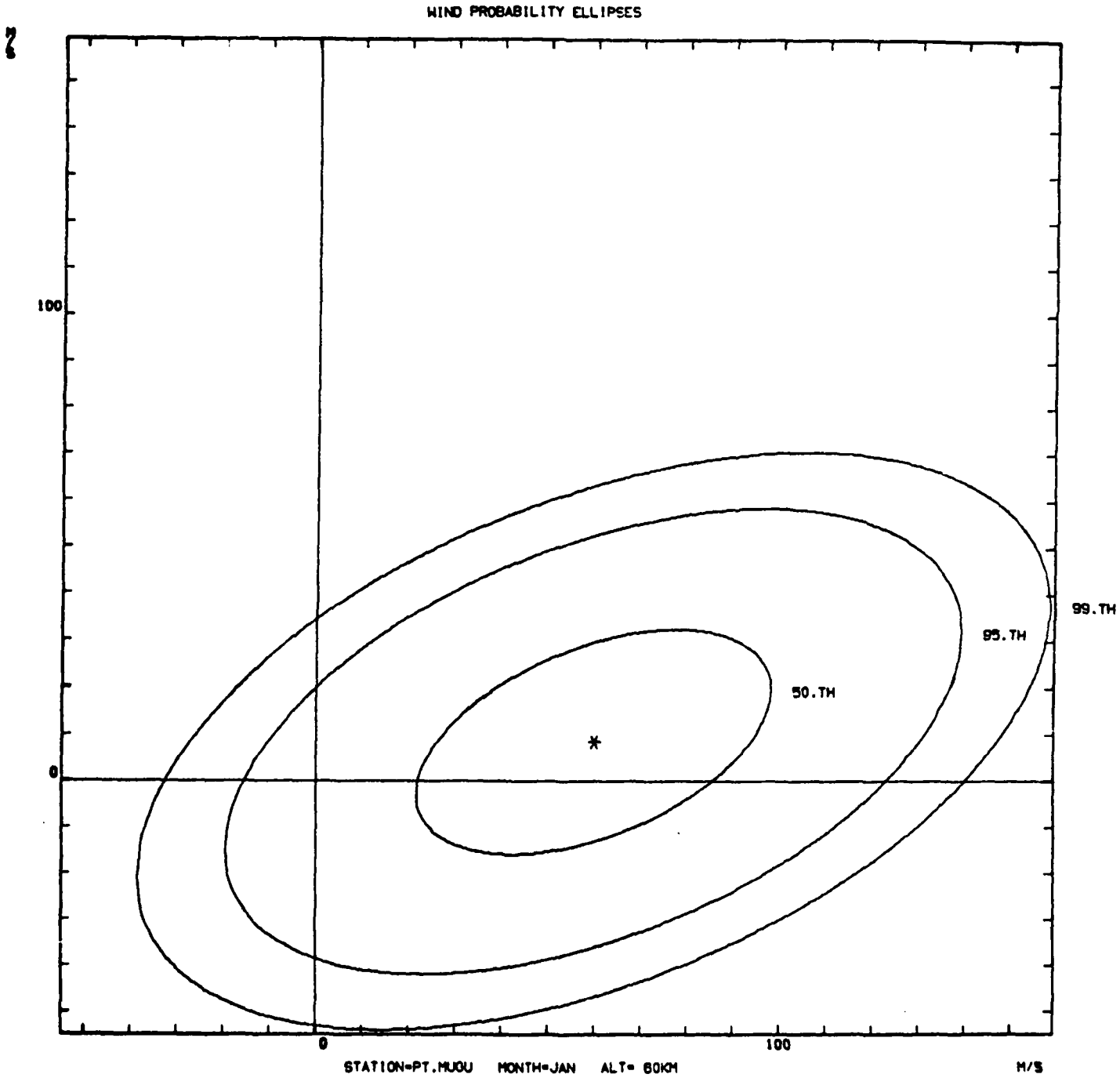

WIND PROBABILITY ELLIPSES
N
100
0
0
100
99.TH
95.TH
50.TH
STATION=PT.MUGU MONTH=JAN ALT= 60KM
M/S

Figure A-43.

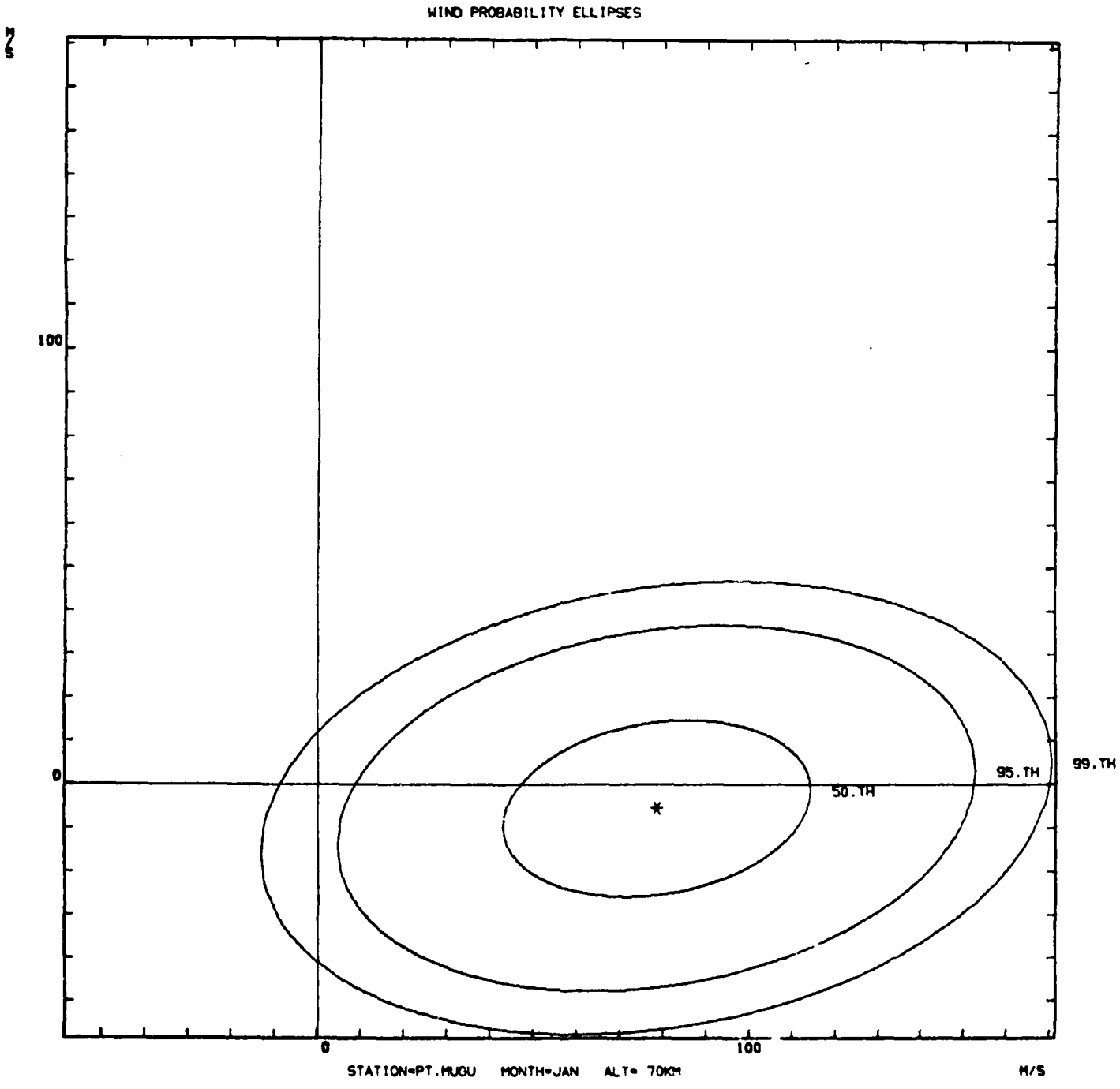

WIND PROBABILITY ELLIPSES
N
S
100
0
95.TH
99.TH
50.TH
0
100
STATION=PT.MUGU MONTH=JAN ALT= 70KM
M/S

Figure A-44.

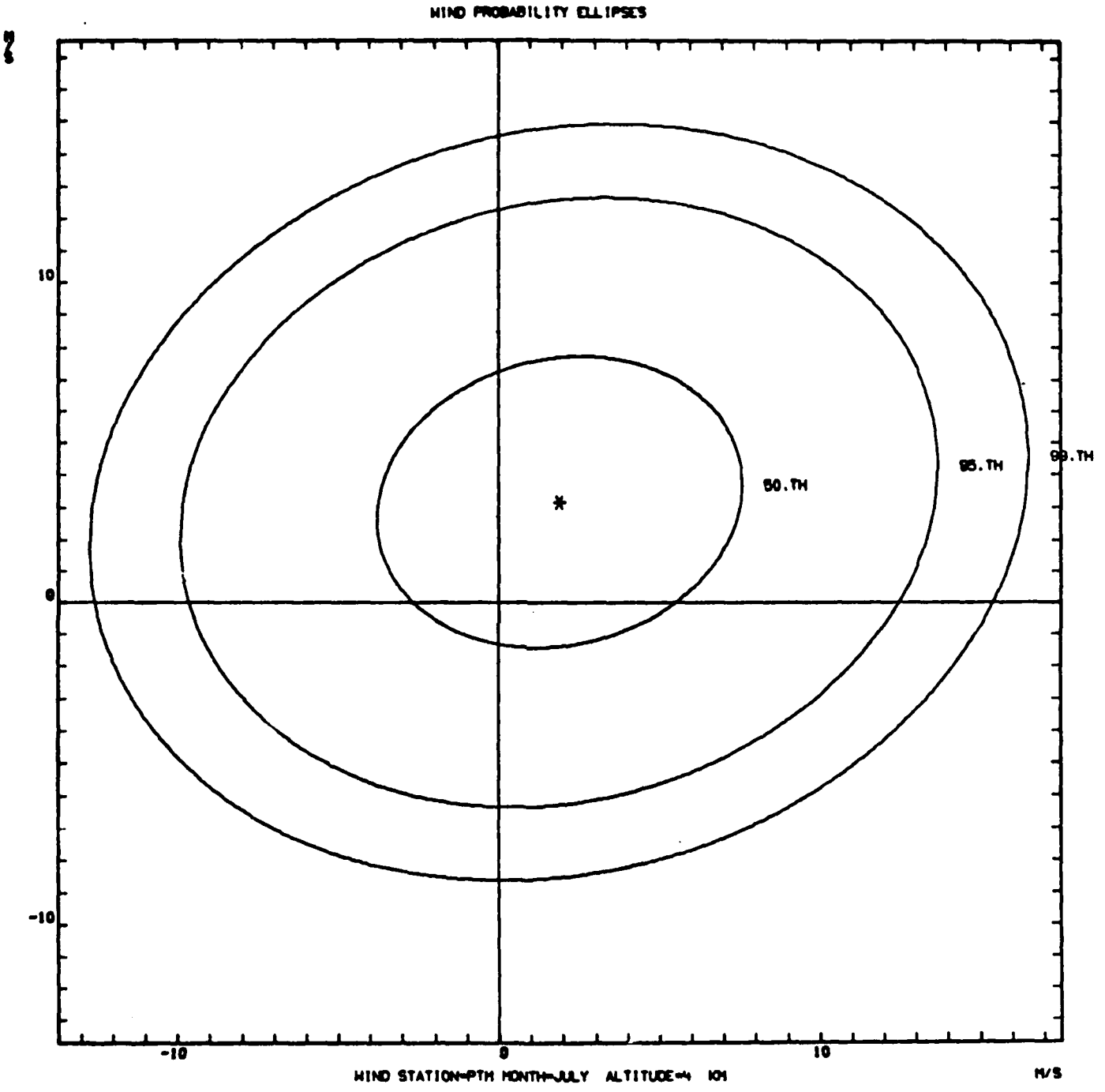

WIND PROBABILITY ELLIPSES
10
0
-10
-10
0
10
50.TH
95.TH
99.TH
WIND STATION=PTH MONTH=JULY ALTITUDE=4 KM
M/S

Figure A-45.

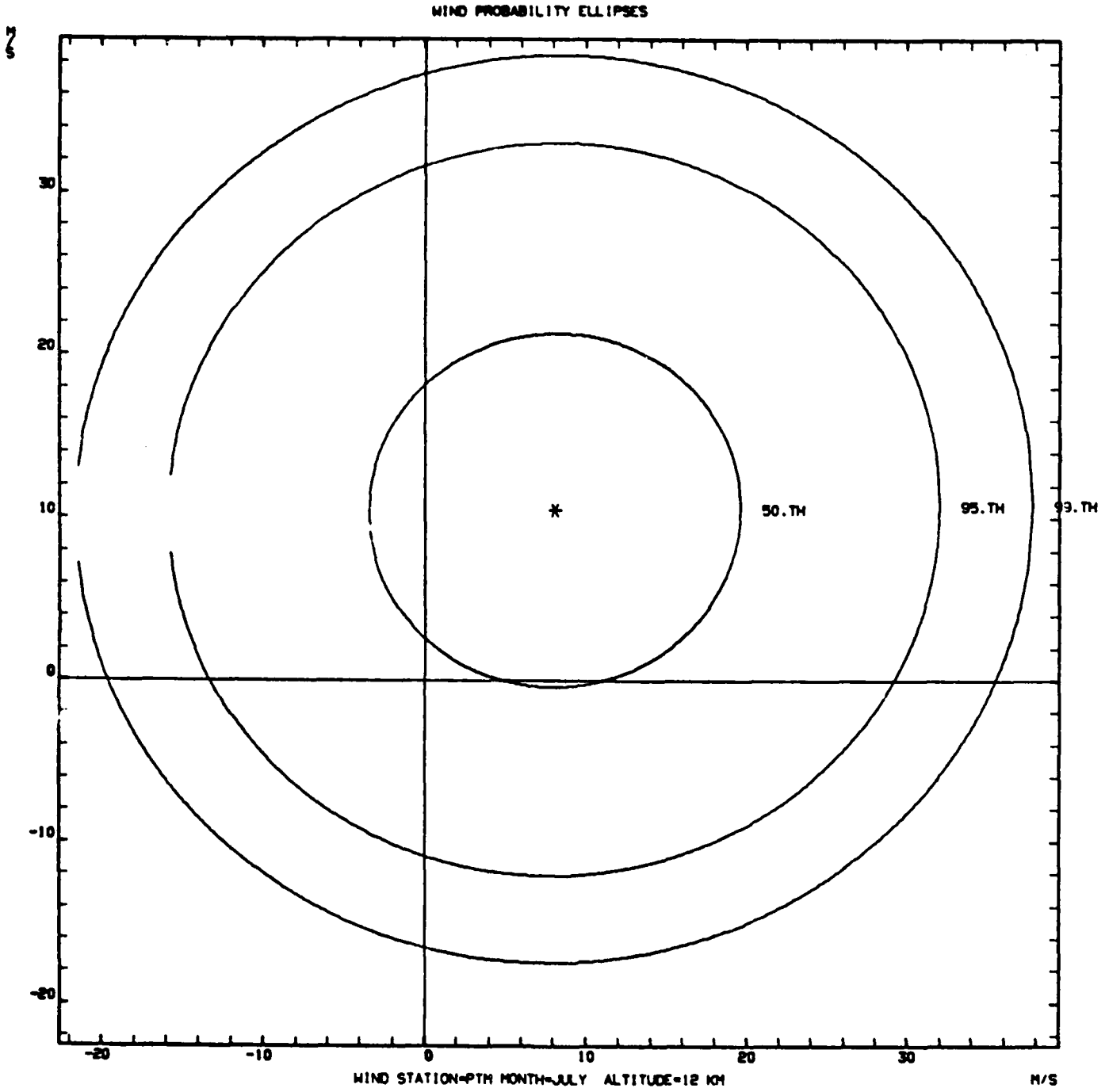

WIND PROBABILITY ELLIPSES
M/S
30
20
10
0
-10
-20
50.TH
95.TH
99.TH
-20
-10
0
10
20
30
WIND STATION=PTH MONTH=JULY ALTITUDE=12 KM
M/S

Figure A-46.

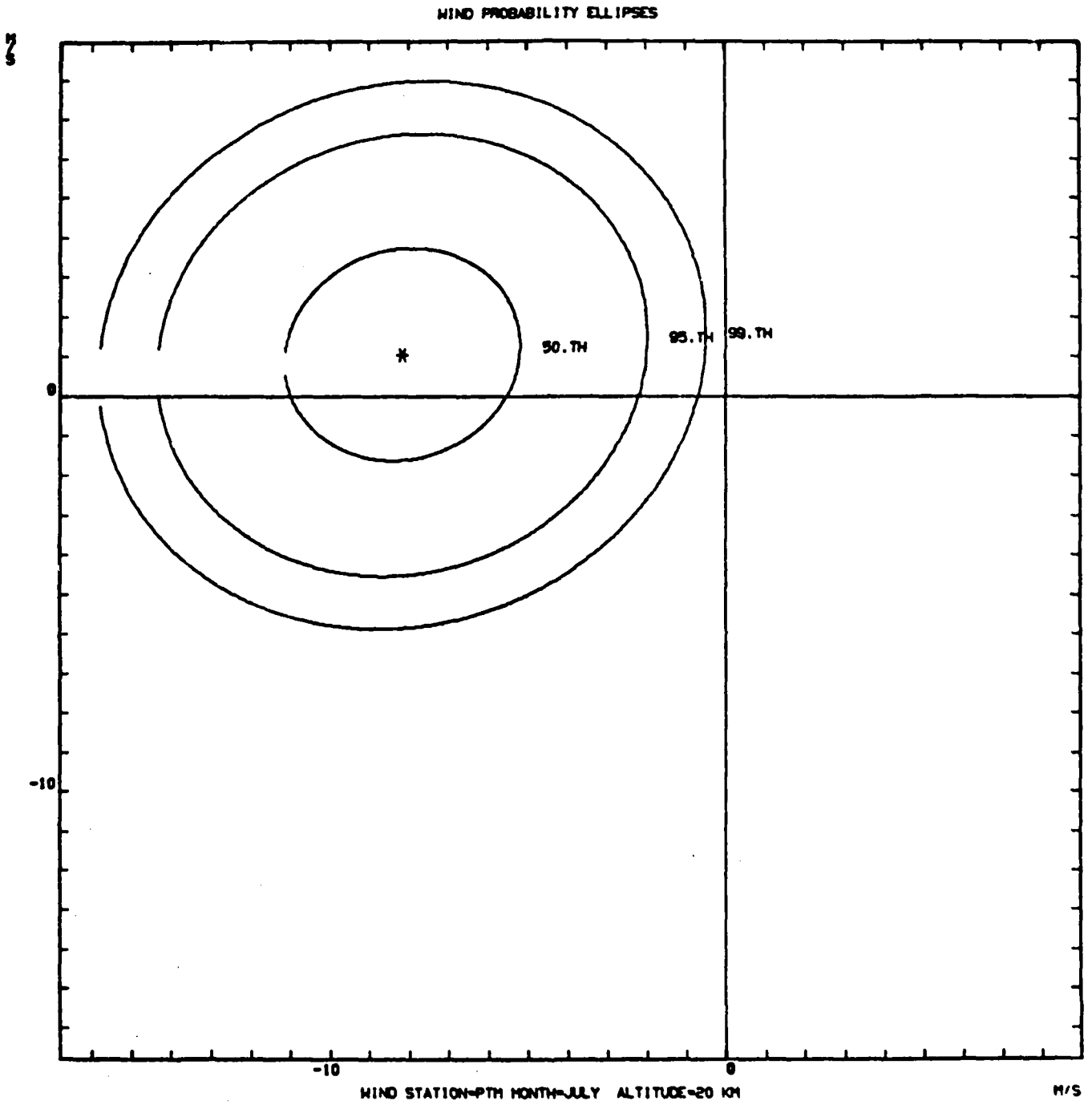

WIND PROBABILITY ELLIPSES
N
S
50.TH
95.TH
99.TH
0
-10
-10
0
WIND STATION=PTH MONTH=JULY ALTITUDE=20 KM
M/S

Figure A-47.

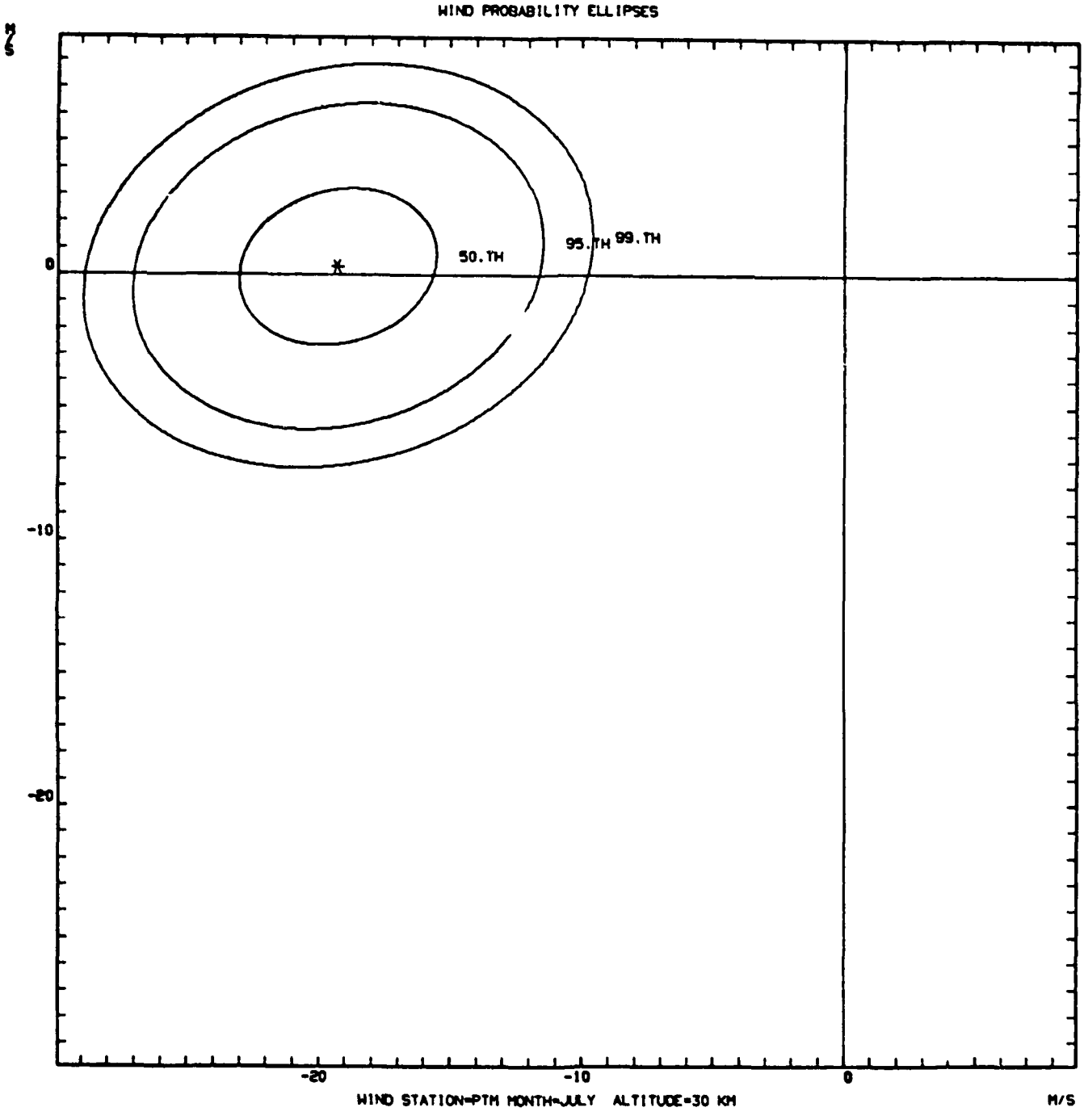

WIND PROBABILITY ELLIPSES
M/S
50.TH
95.TH
99.TH
0
-10
-20
-20
-10
0
WIND STATION=PTM MONTH=JULY ALTITUDE=30 KM
M/S

Figure A-48.

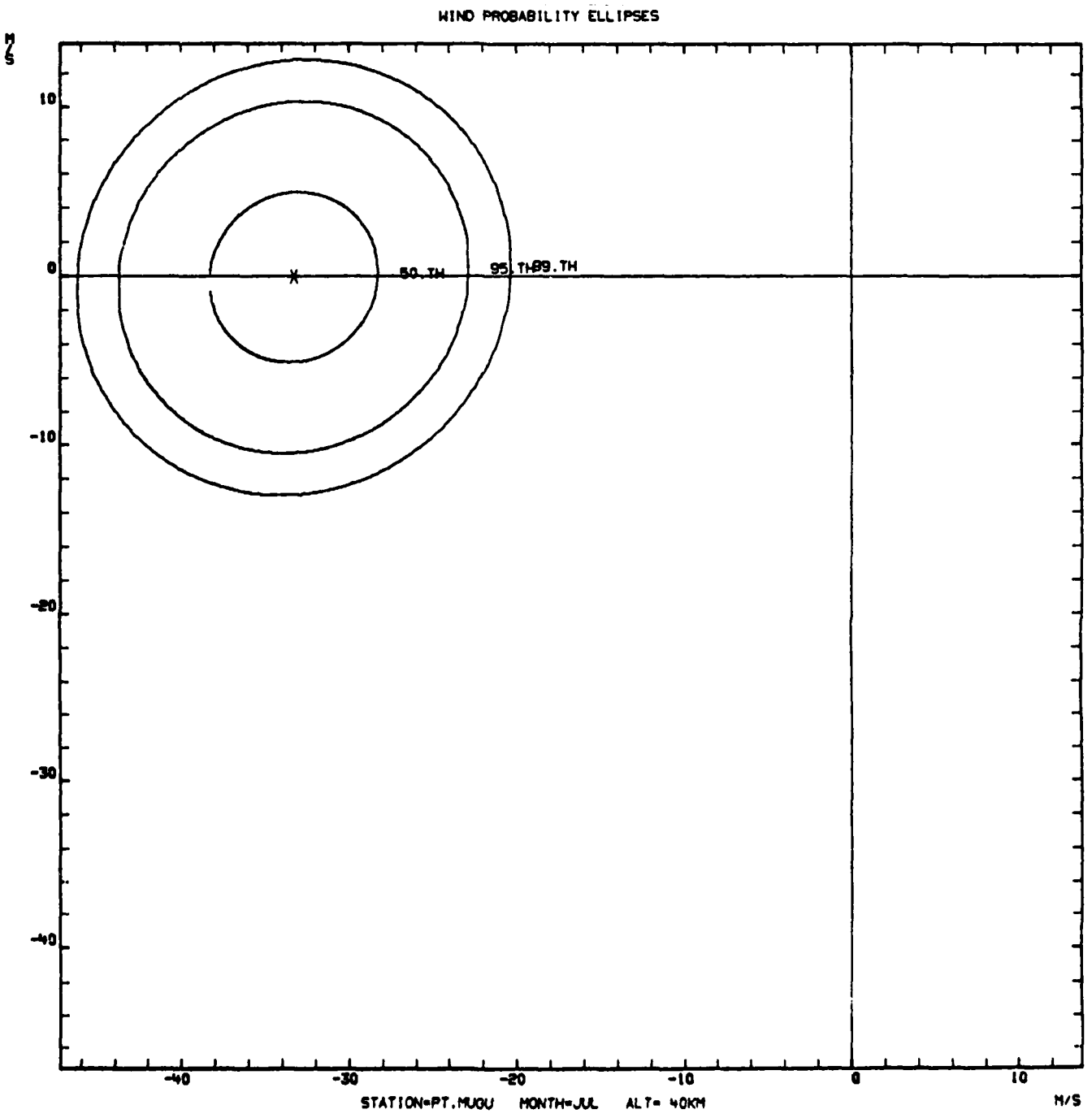

WIND PROBABILITY ELLIPSES
M/S
10
0
-10
-20
-30
-40
50.TH
95.TH
99.TH
-40
-30
-20
-10
0
10
M/S
STATION=PT.MUGU MONTH=JUL ALT= 40KM

Figure A-49.

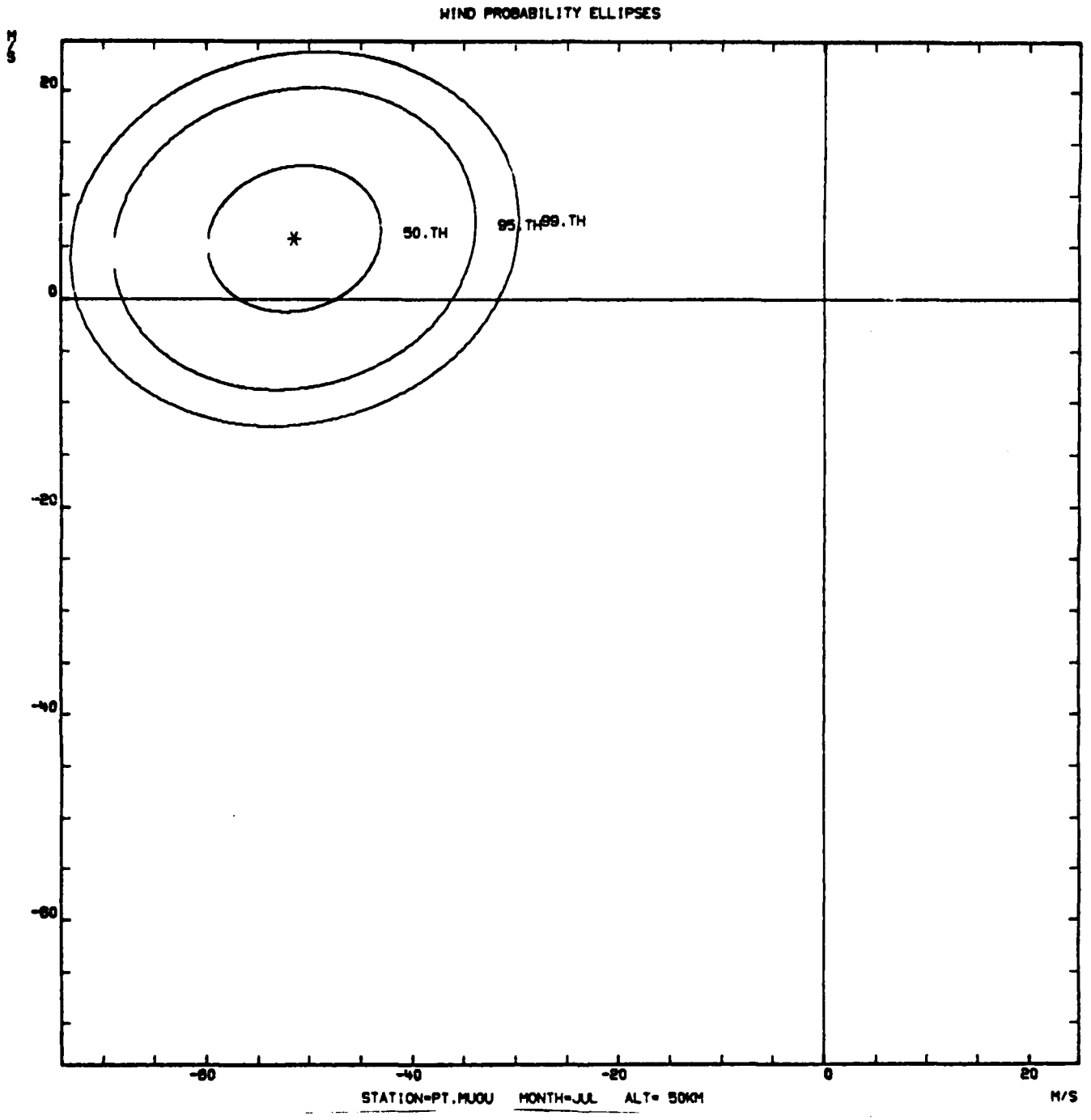

WIND PROBABILITY ELLIPSES
M/S
20
0
-20
-40
-60
50.TH
95.TH
99.TH
-60
-40
-20
0
20
STATION=PT.MUGU MONTH=JUL ALT= 50KM
M/S

Figure A-50.

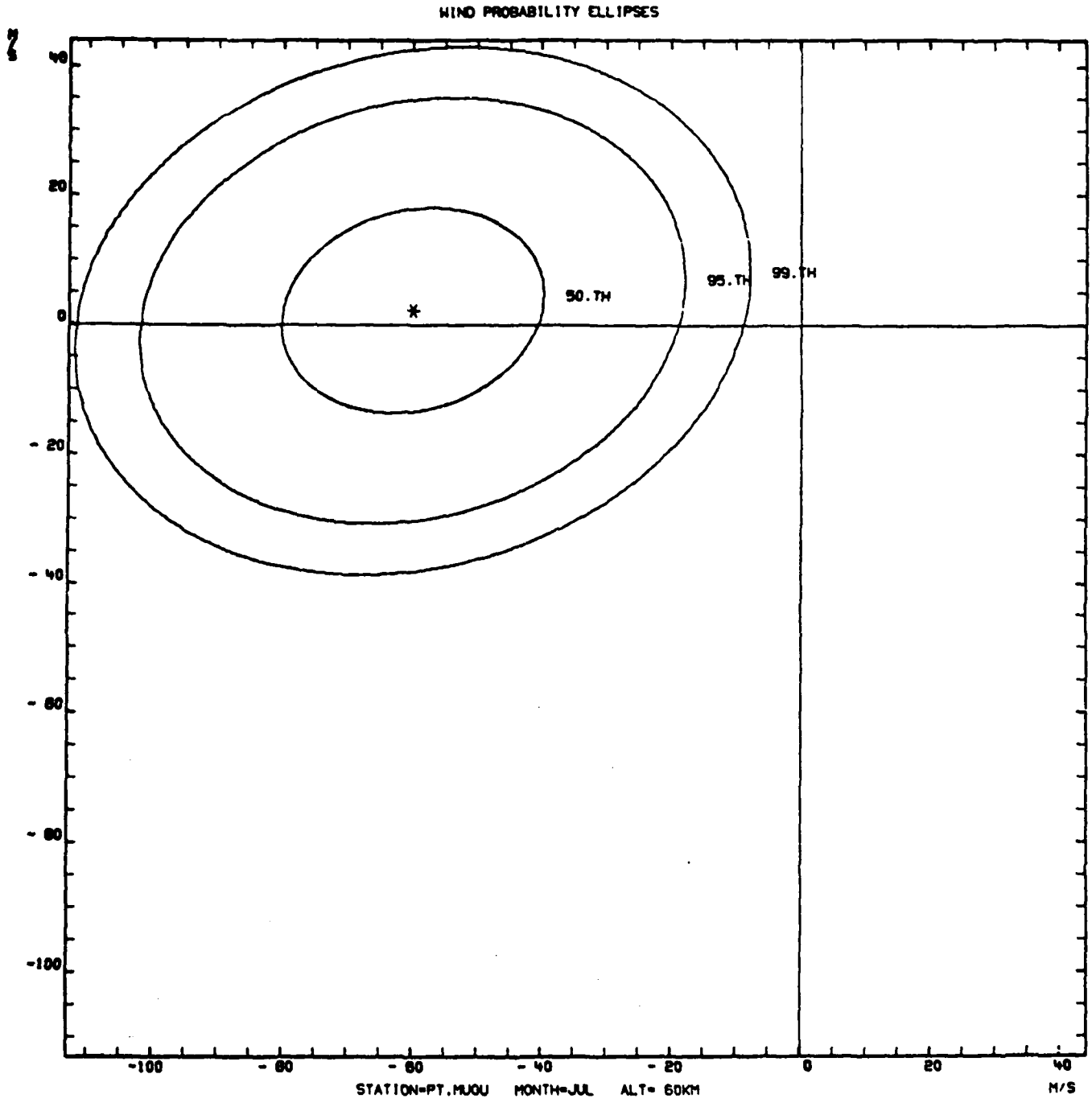

WIND PROBABILITY ELLIPSES
N
40
20
0
- 20
- 40
- 60
- 80
-100
50.TH
95.TH
99.TH
-100
- 80
- 60
- 40
- 20
0
20
40
M/S
STATION=PT.MUGU MONTH=JUL ALT= 60KM

Figure A-51.

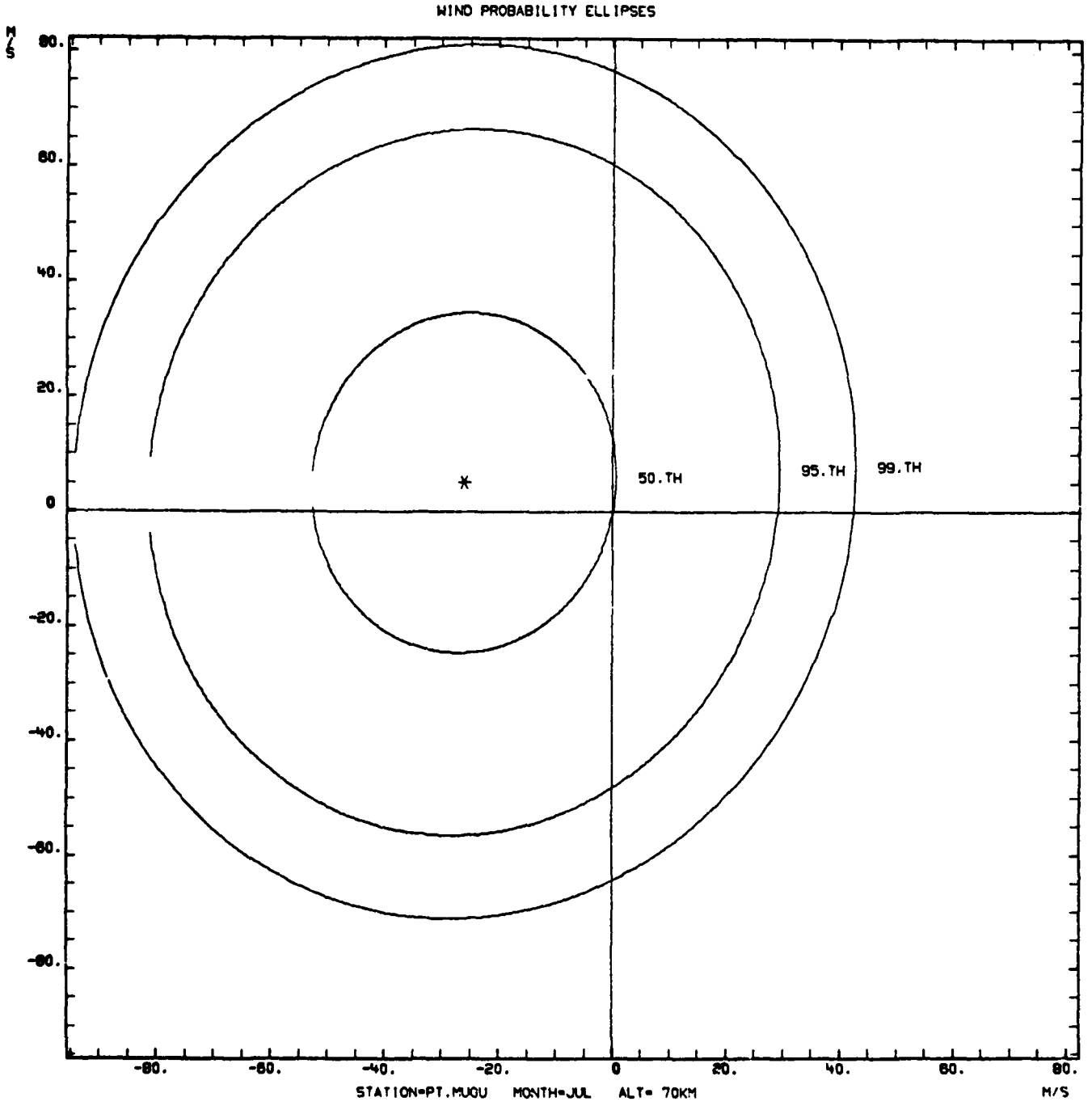

WIND PROBABILITY ELLIPSES
M/S
80.
60.
40.
20.
0
-20.
-40.
-60.
-80.
50.TH
95.TH
99.TH
-80.
-60.
-40.
-20.
0
20.
40.
60.
80.
STATION=PT.MUGU MONTH=JUL ALT= 70KM
M/S

Figure A-52.

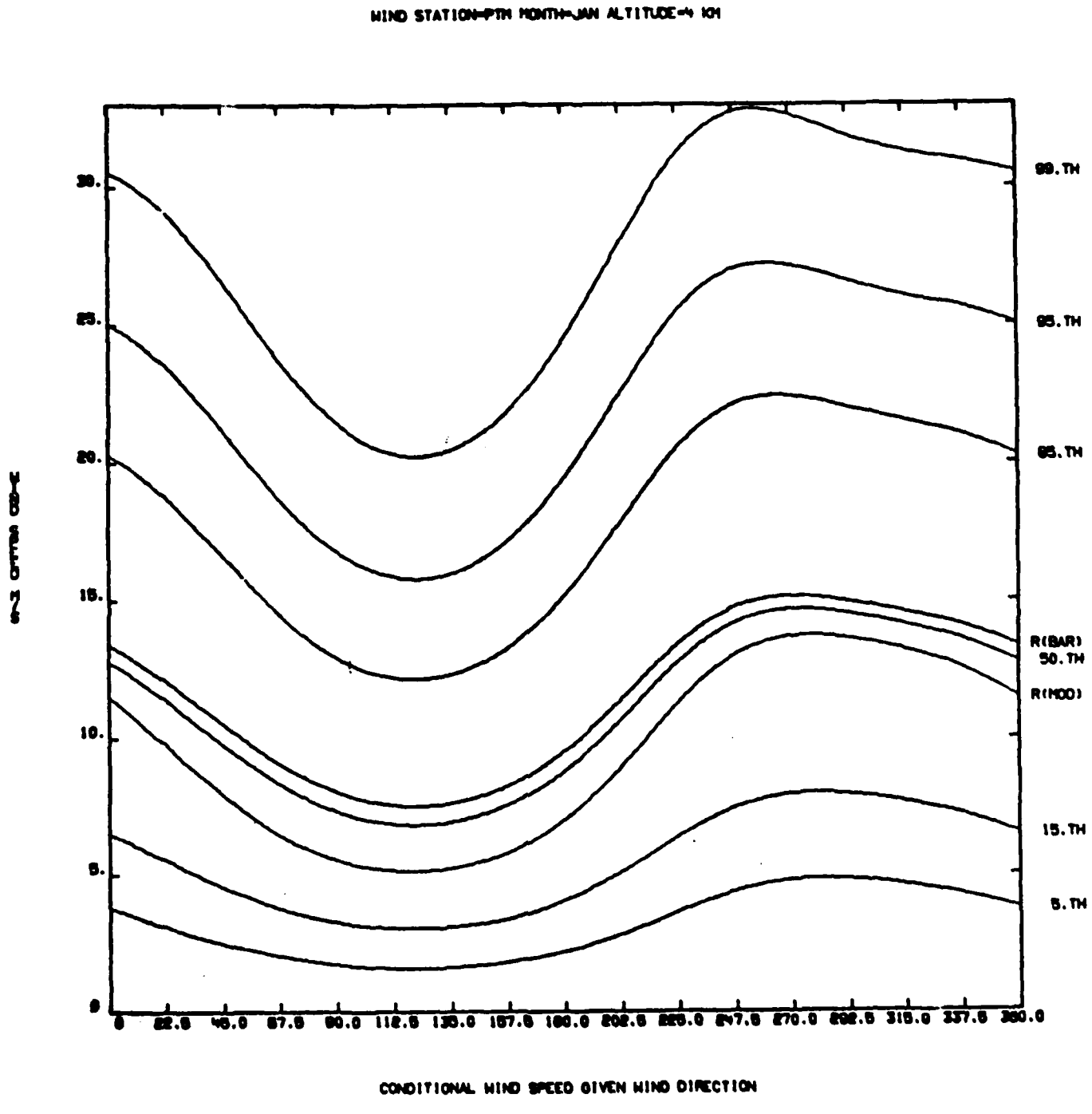

WIND STATION=PTH MONTH=JAN ALTITUDE=4 KM
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
30.
25.
20.
15.
10.
5.
0
0
22.5
45.0
67.5
90.0
112.5
135.0
157.5
180.0
202.5
225.0
247.5
270.0
292.5
315.0
337.5
360.0
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-53.

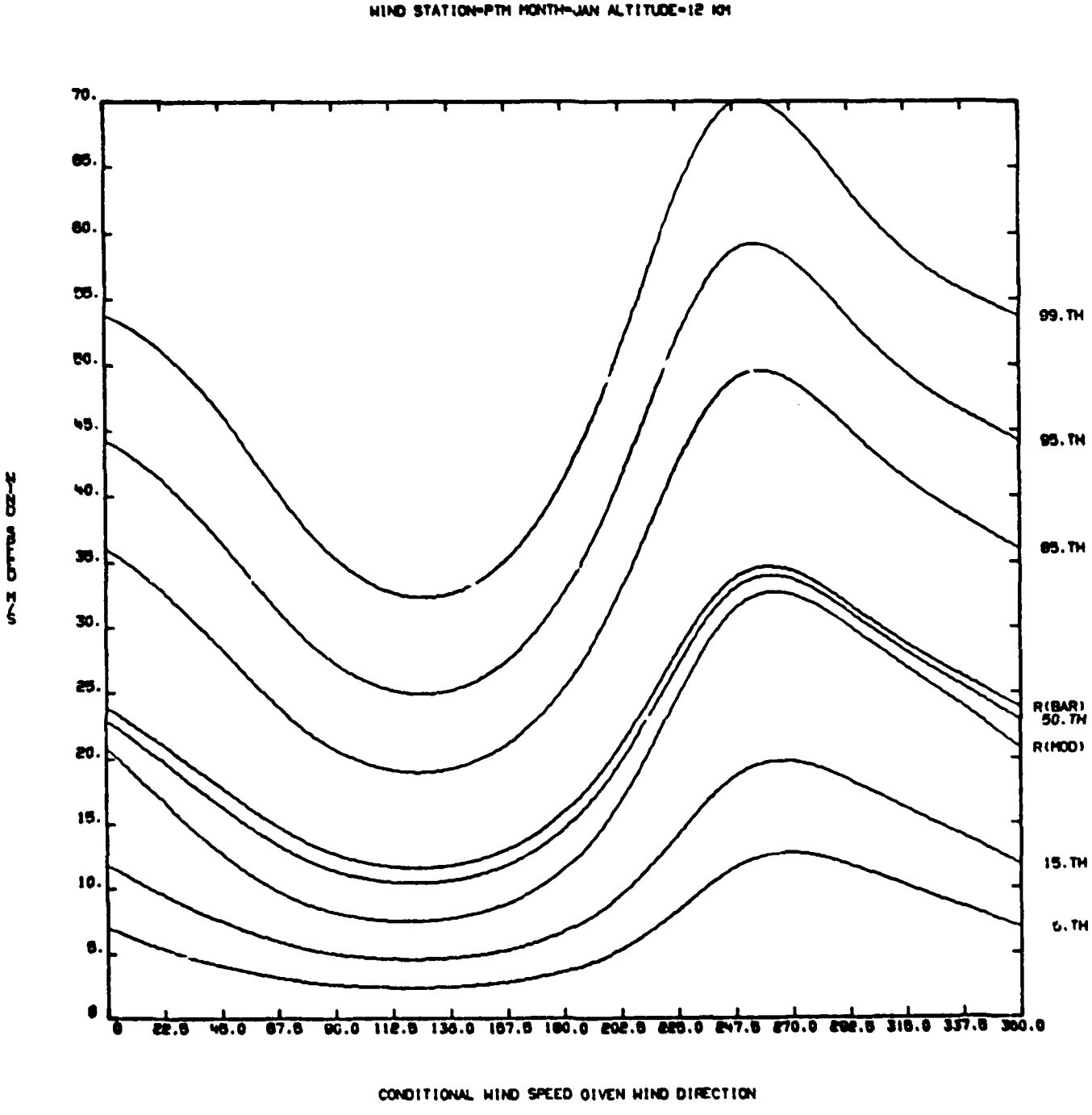

WIND STATION=PTH MONTH=JAN ALTITUDE=12 KM
70.
65.
60.
55.
50.
45.
40.
35.
30.
25.
20.
15.
10.
5.
0
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
0
22.5
45.0
67.5
90.0
112.5
135.0
157.5
180.0
202.5
225.0
247.5
270.0
292.5
315.0
337.5
360.0
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-54.

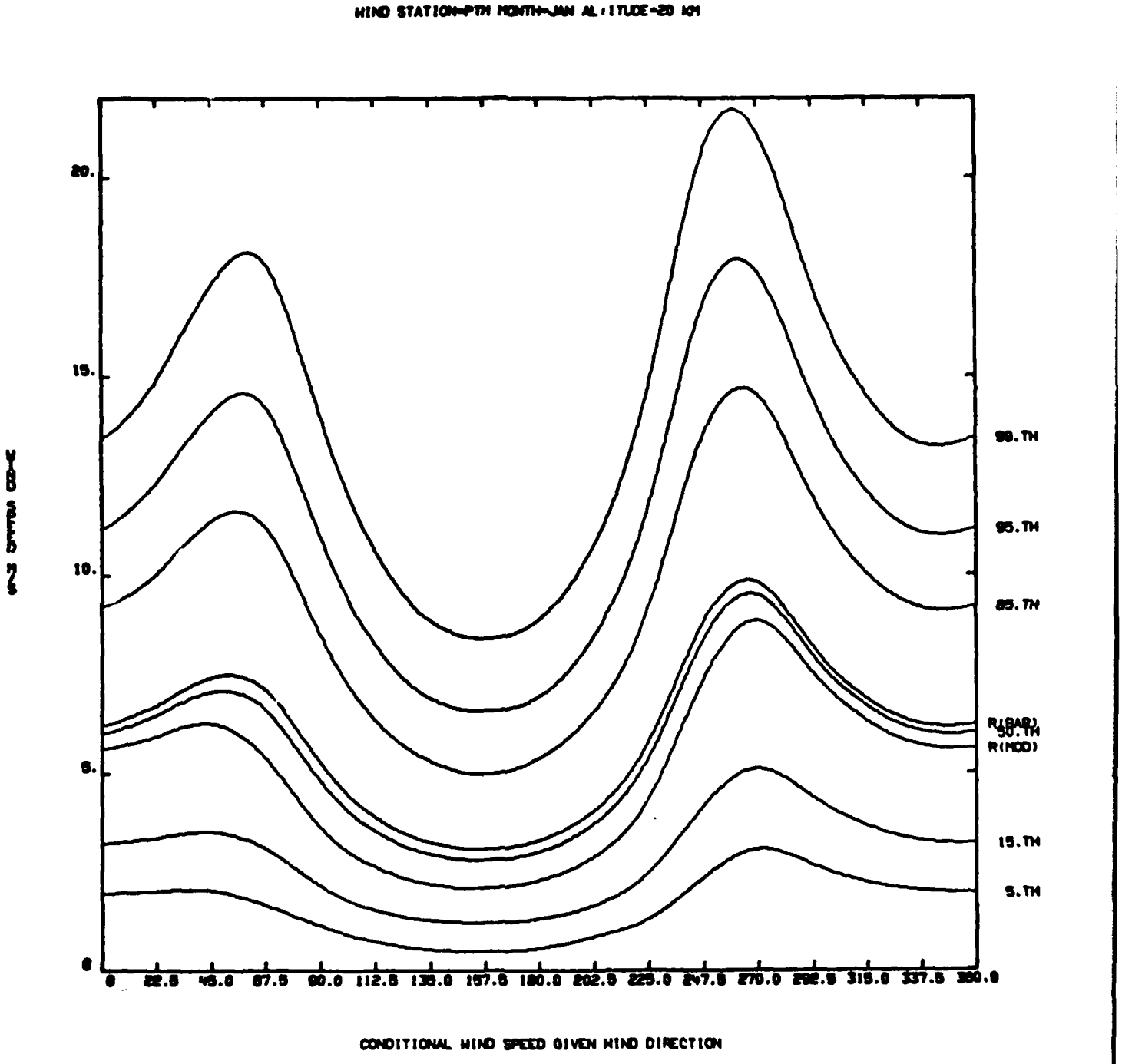

WIND STATION=PTN MONTH=JAN ALTITUDE=20 KM
20.
15.
10.
5.
0
0
22.5
45.0
67.5
90.0
112.5
135.0
157.5
180.0
202.5
225.0
247.5
270.0
292.5
315.0
337.5
360.0
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-55.

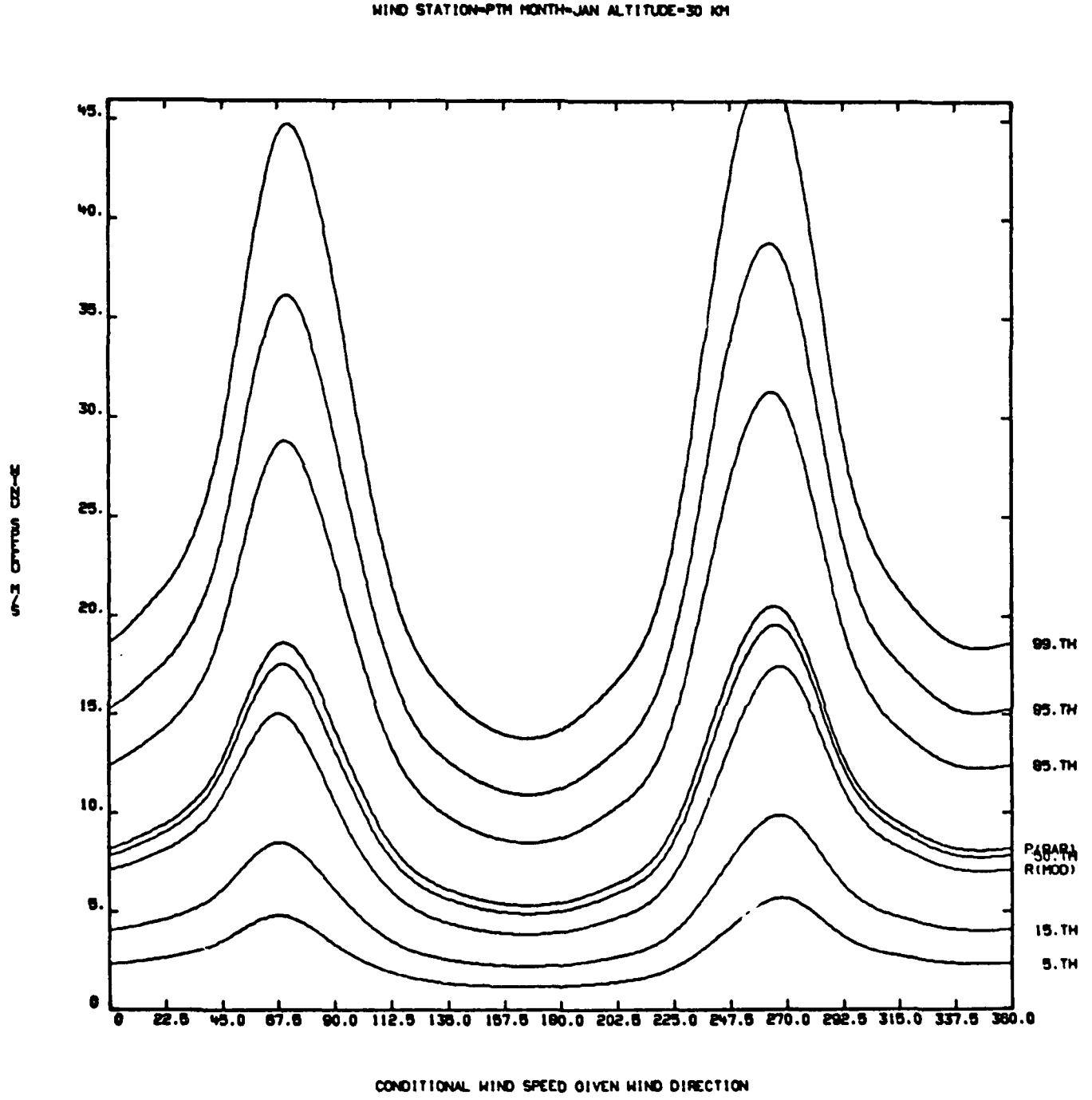

WIND STATION=PTH MONTH=JAN ALTITUDE=30 KM
45.
40.
35.
30.
25.
20.
15.
10.
5.
0
0
22.5
45.0
67.5
90.0
112.5
135.0
157.5
180.0
202.5
225.0
247.5
270.0
292.5
315.0
337.5
360.0
99.TH
95.TH
85.TH
50.TH
PARAR)
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-56.

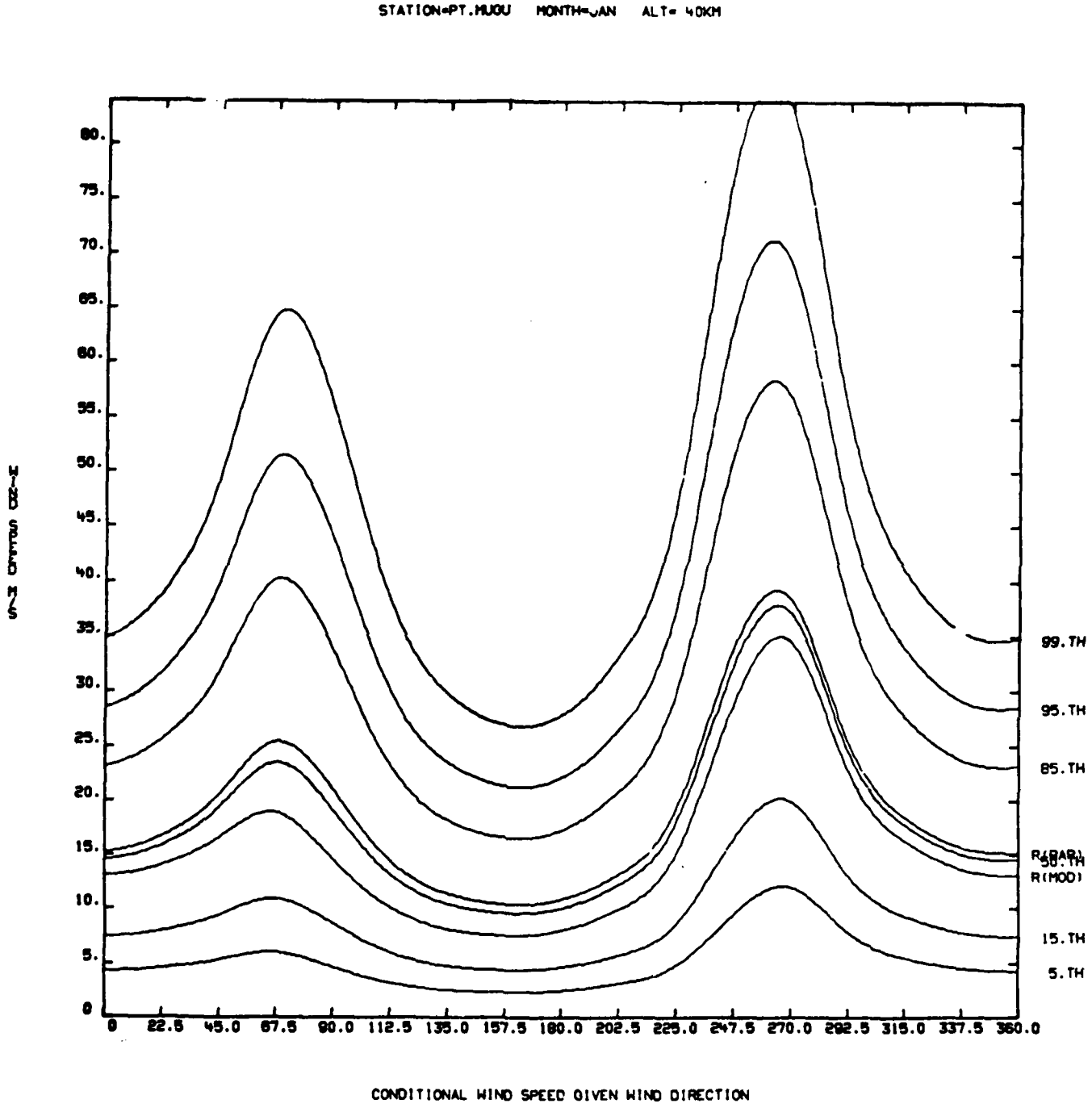

STATION=PT.MUGU MONTH=JAN ALT= 40KM
WIND SPEED M/S
80.
75.
70.
65.
60.
55.
50.
45.
40.
35.
30.
25.
20.
15.
10.
5.
0
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
50.TH
R(BAR)
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-57.

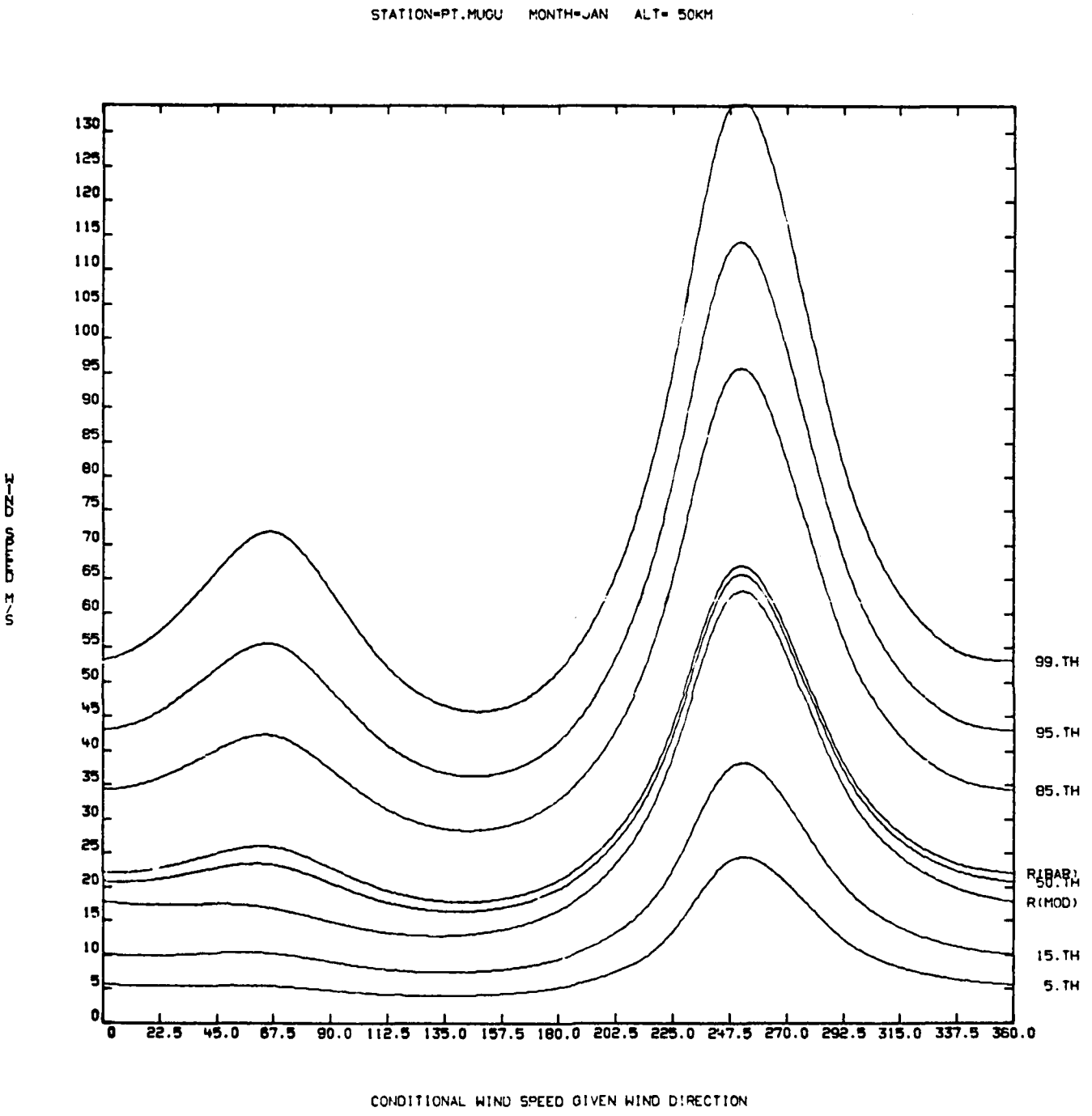

STATION=PT.MUGU MONTH=JAN ALT= 50KM
WIND SPEED M/S
130
125
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-58.

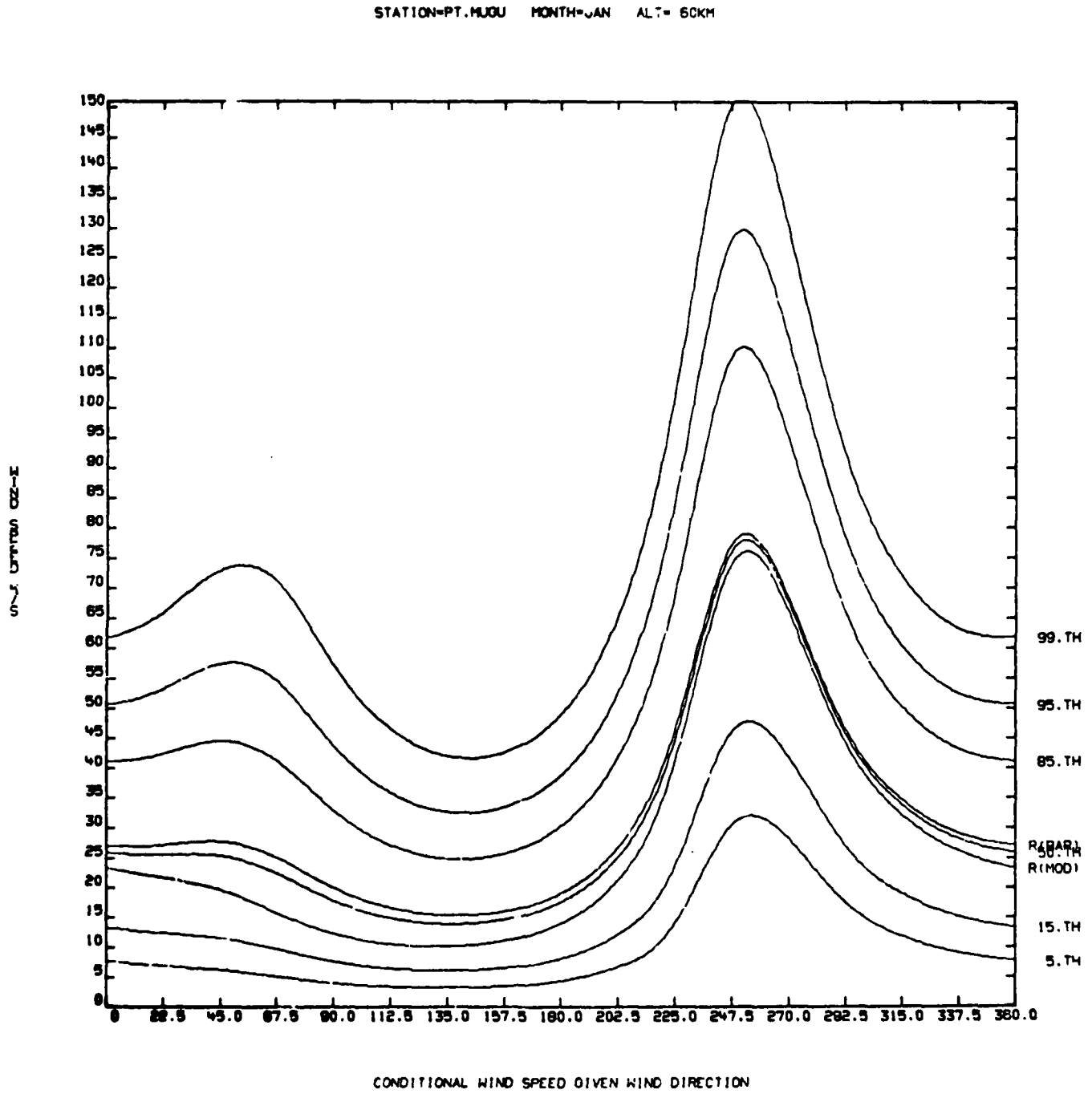

STATION=PT.MUGU MONTH=JAN ALT= 60KM
150
145
140
135
130
125
120
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
22.5
45.0
67.5
90.0
112.5
135.0
157.5
180.0
202.5
225.0
247.5
270.0
292.5
315.0
337.5
360.0
99.TH
95.TH
85.TH
50.TH
R(BAR)
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-59.

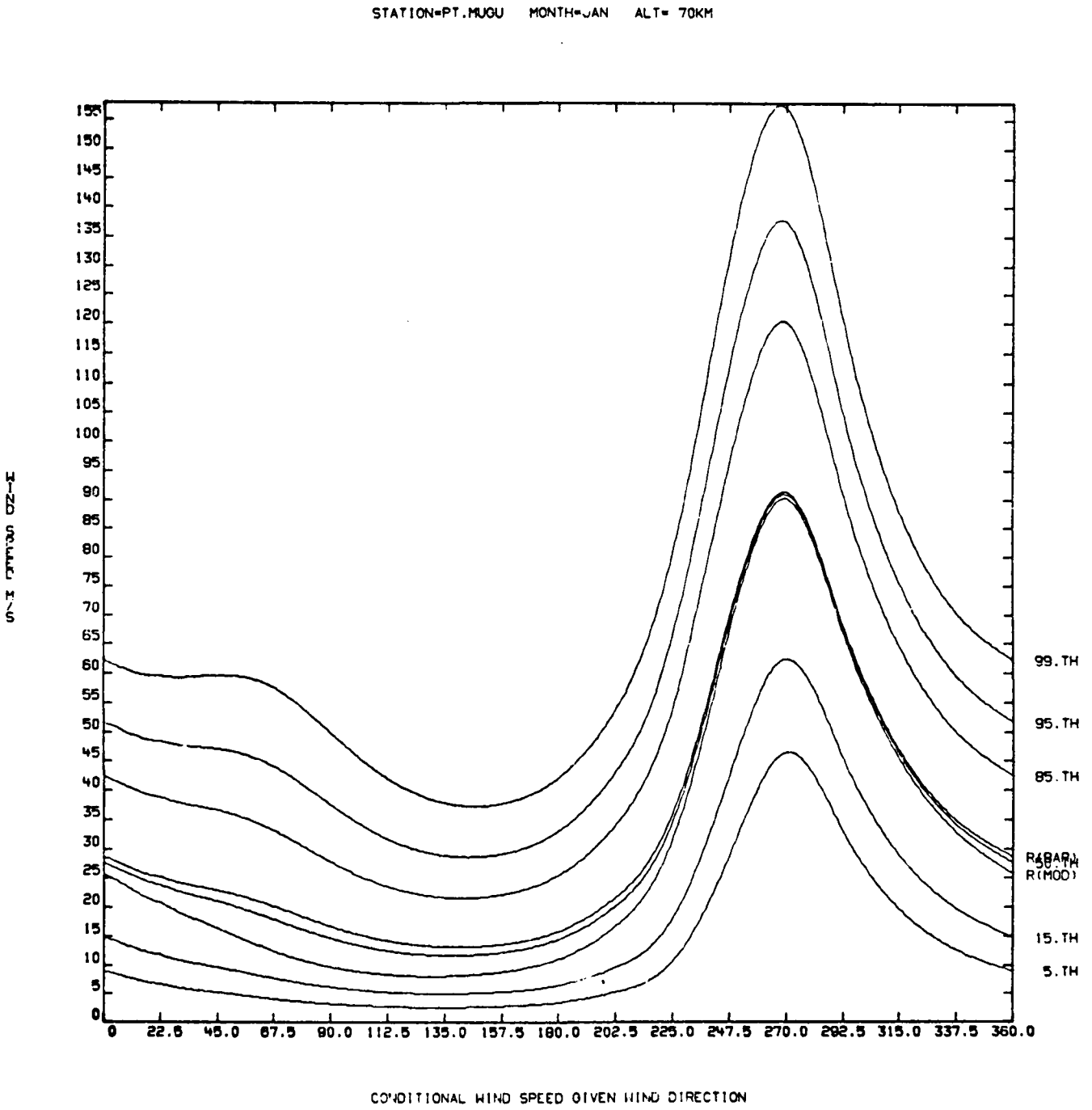

STATION=PT.MUGU MONTH=JAN ALT= 70KM
M-ZO SPEED M/S
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 150
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
50.TH
R(BAR)
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-60.

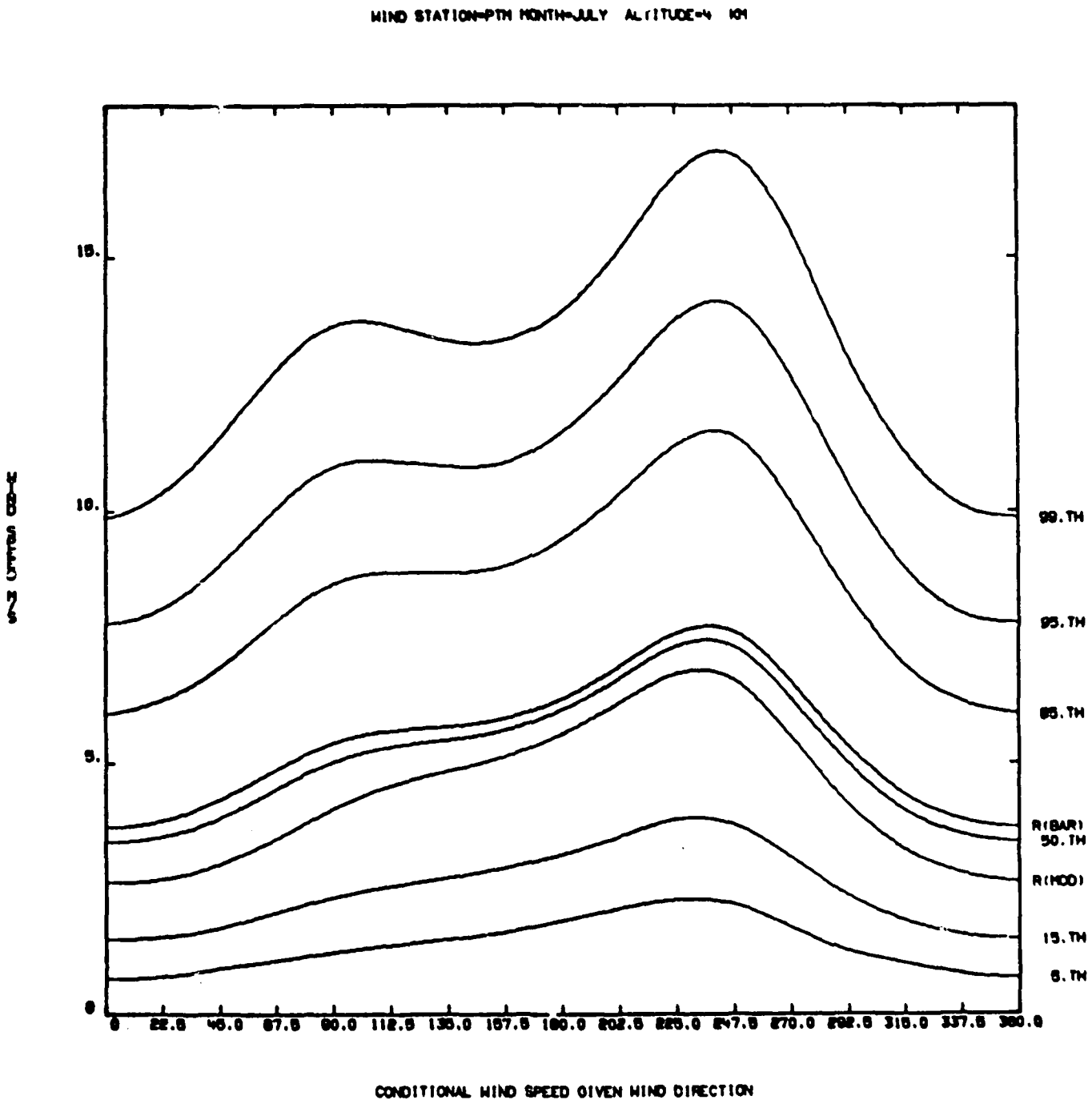

WIND STATION=PTH MONTH=JULY ALTITUDE=4 KM
15.
10.
5.
0
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-61.

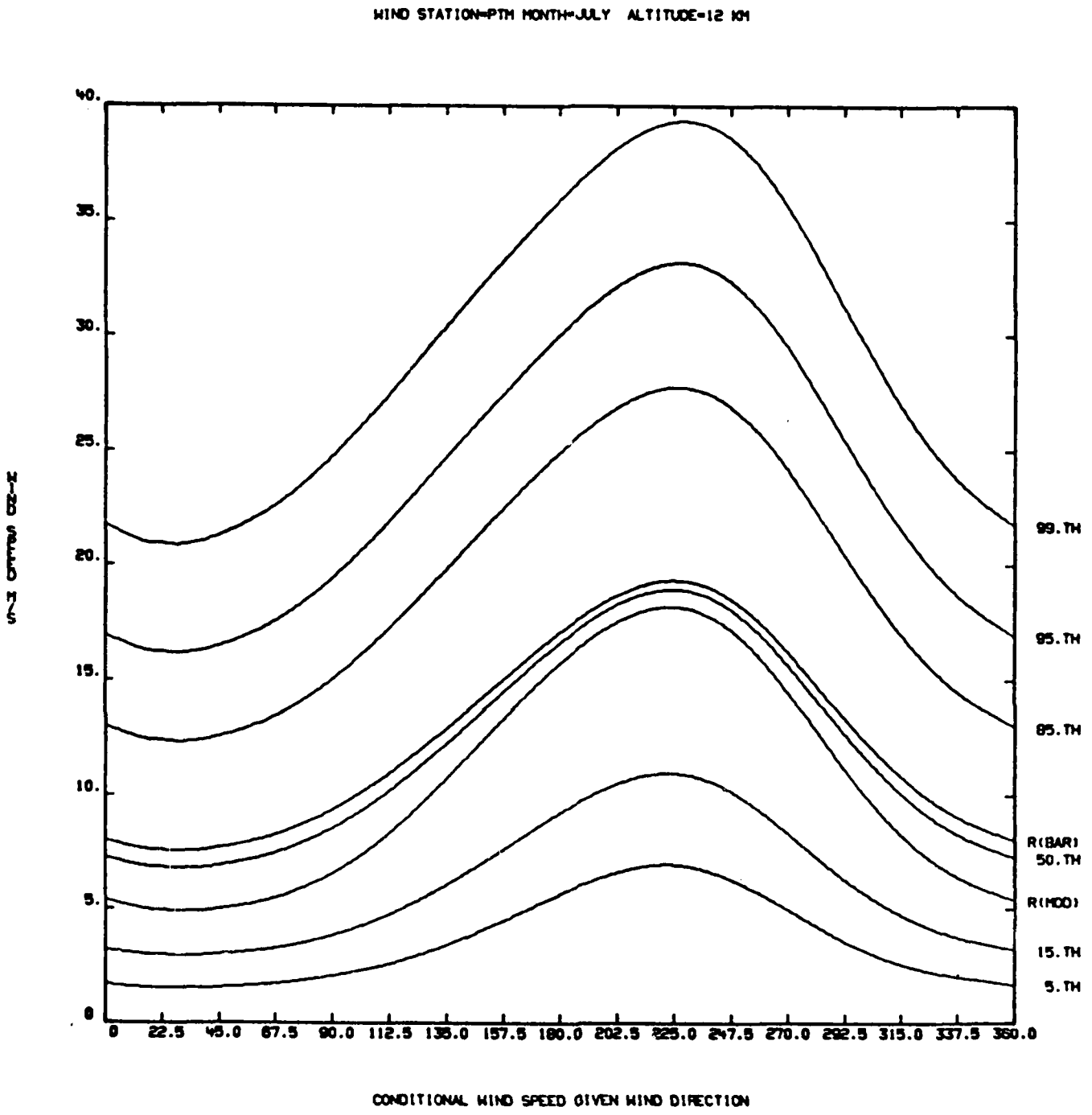

WIND STATION=PTH MONTH=JULY ALTITUDE=12 KM
40.
35.
30.
25.
20.
15.
10.
5.
0
M-SEC SPEED M/S
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-62.

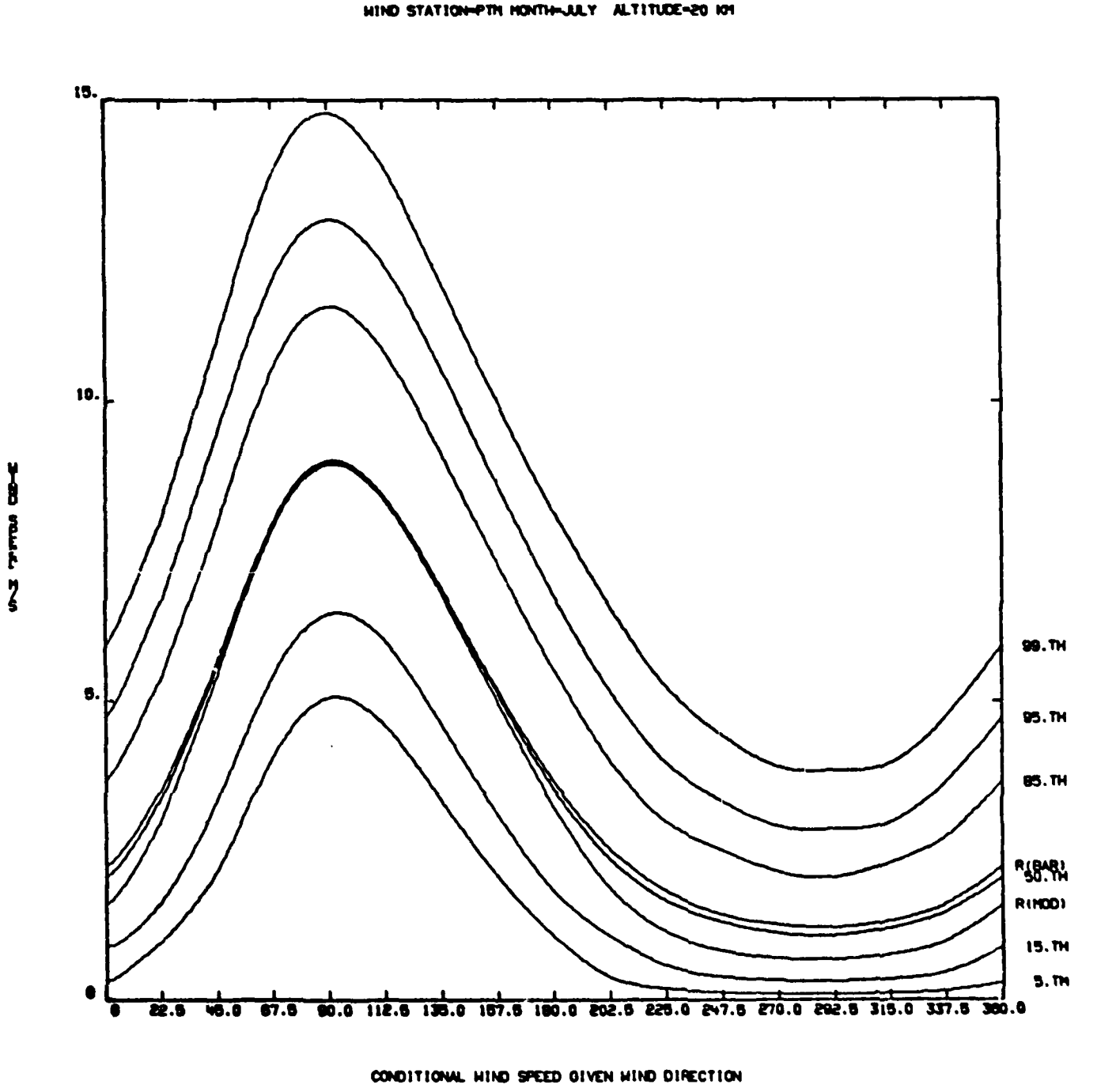

WIND STATION=PTH MONTH=JULY ALTITUDE=20 KM
15.
10.
5.
0
WIND SPEED M/S
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-63.

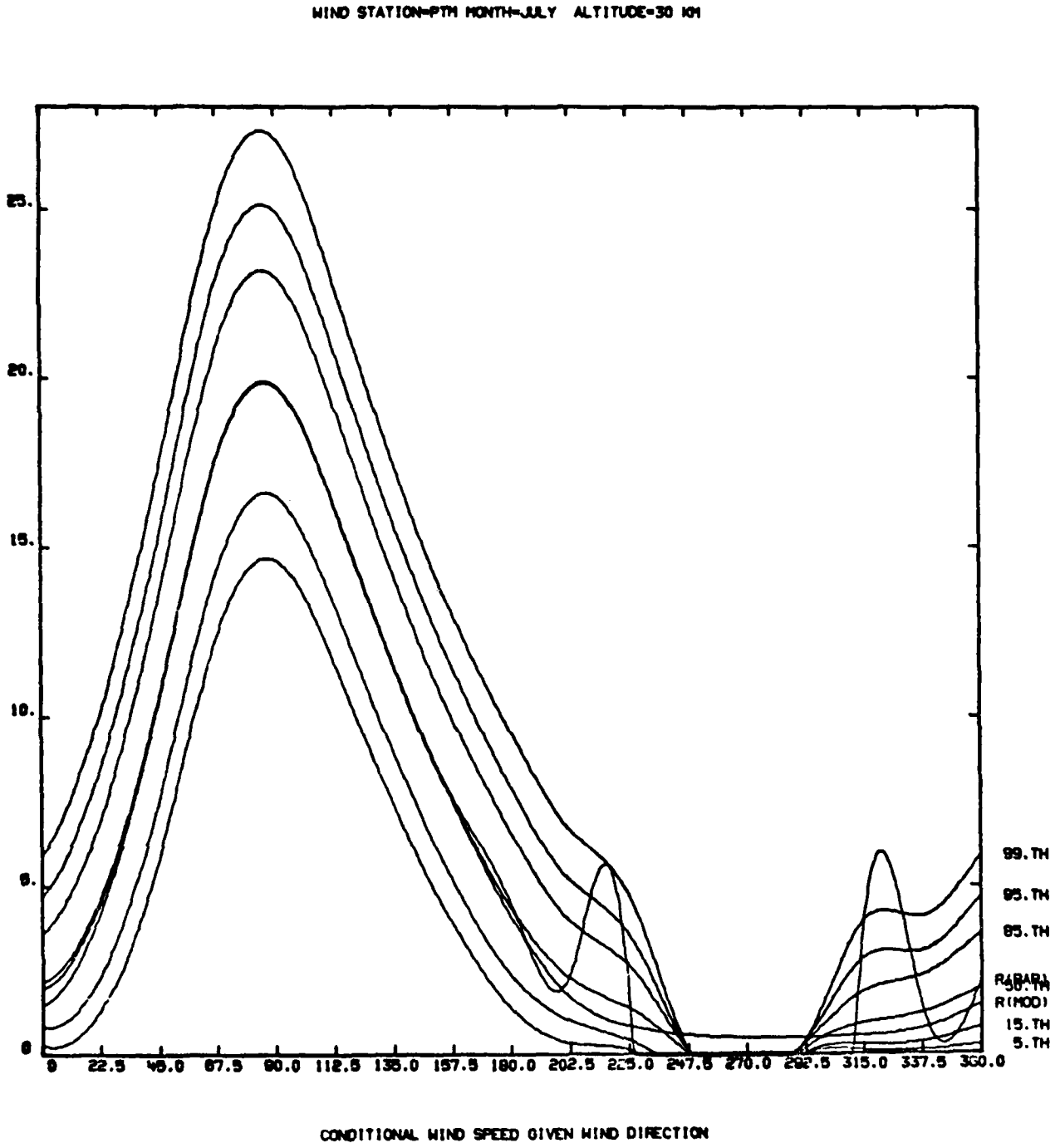

WIND STATION=PTH MONTH=JULY ALTITUDE=30 KM
25.
20.
15.
10.
5.
0
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
50.TH
15.TH
5.TH
RADAR)
R(MOD)
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-64.

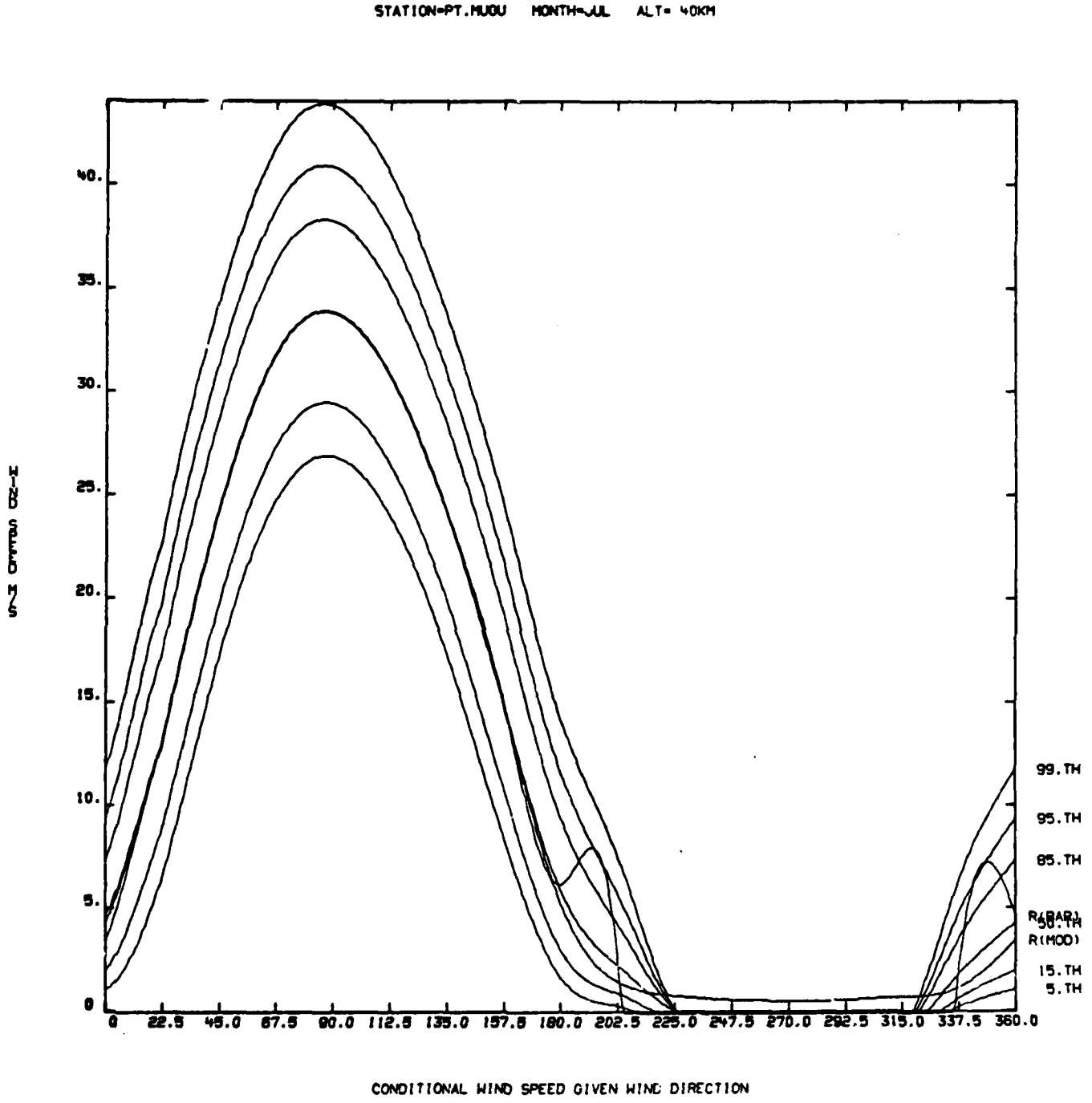

STATION=PT.MUGU MONTH=JUL ALT= 40KM
WIND SPEED M/S
40.
35.
30.
25.
20.
15.
10.
5.
0
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
50.TH
R(BAR)
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-65.

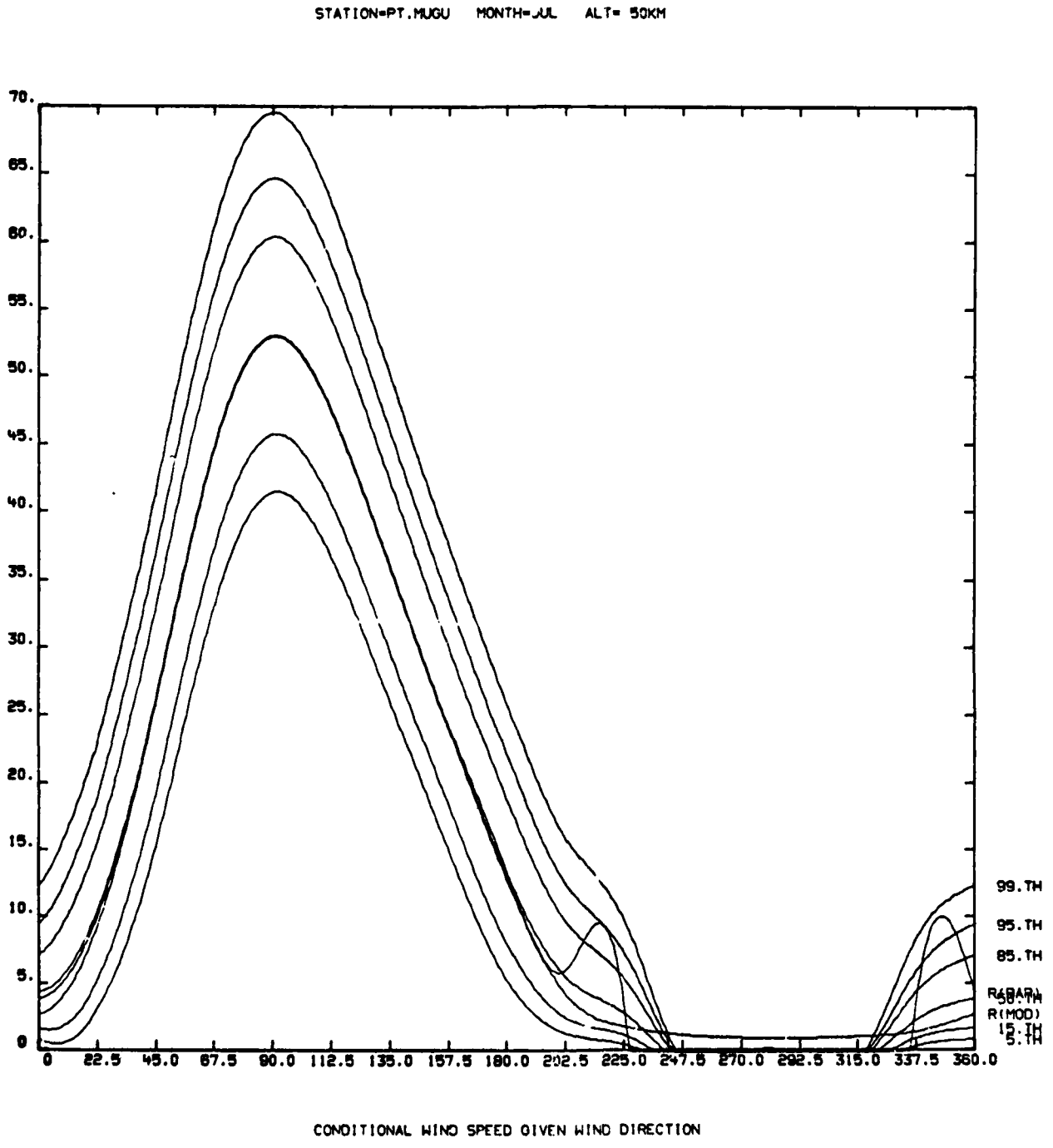

STATION=PT.MUGU MONTH=JUL ALT= 50KM
70.
65.
60.
55.
50.
45.
40.
35.
30.
25.
20.
15.
10.
5.
0
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
99.TH
95.TH
85.TH
50.TH
15.TH
5.TH
RADAR
R(MOD)
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-66.

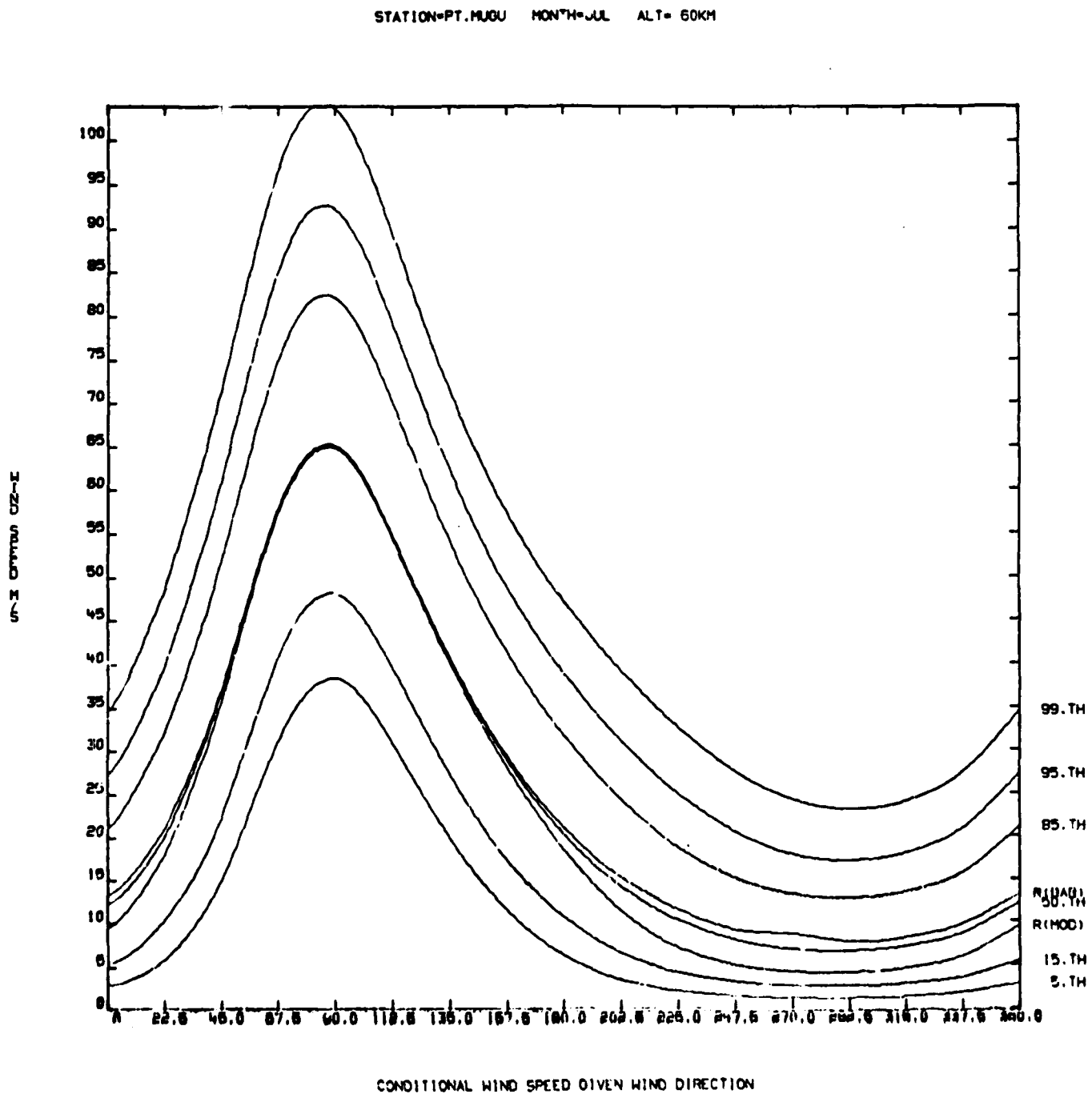

STATION=PT.MUGU MONTH=JUL ALT= 60KM
99.TH
95.TH
85.TH
50.TH
R(MOD)
15.TH
5.TH
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-67.

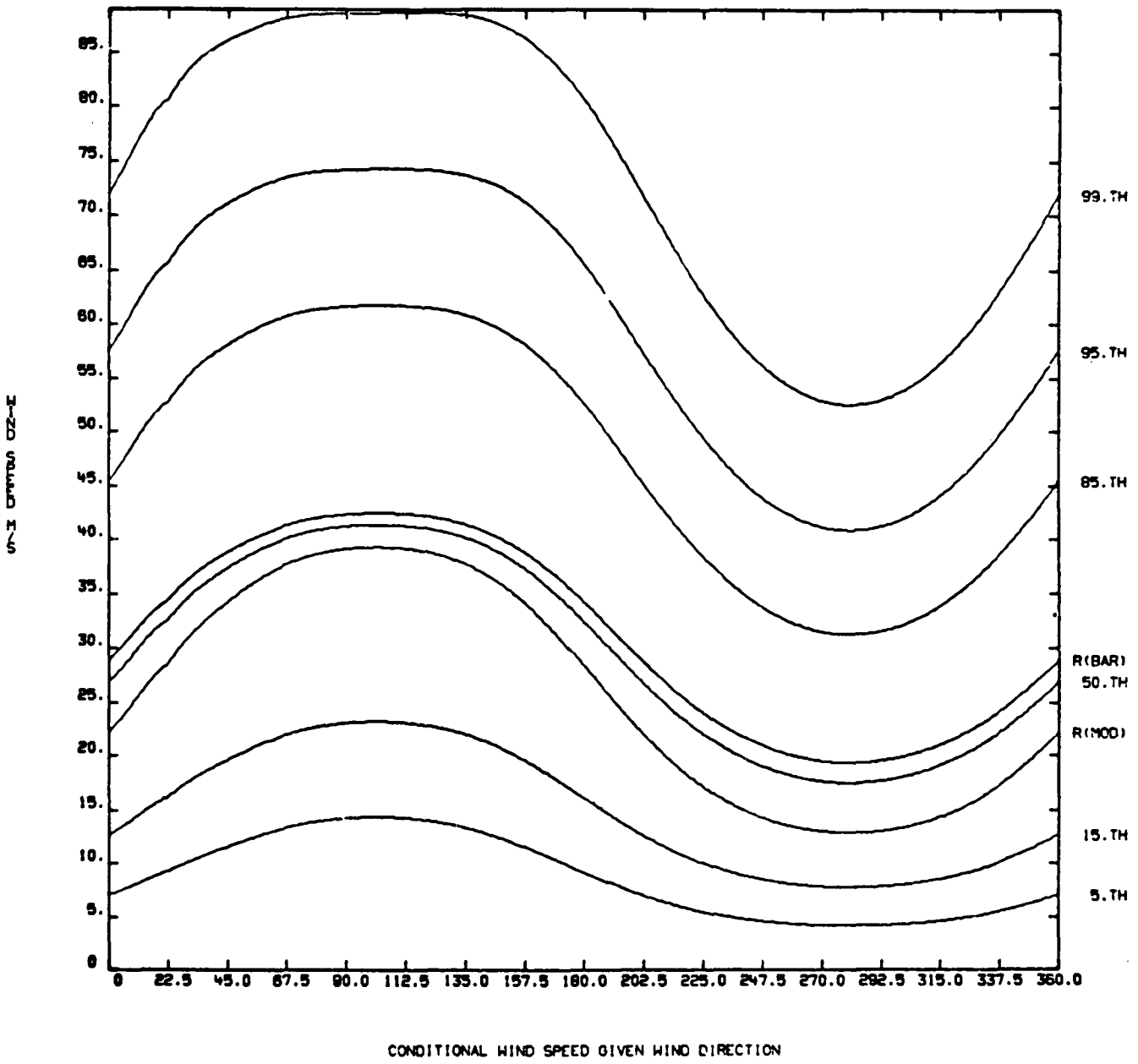

STATION=PT.MUGU MONTH=JUL ALT= 70KM
WIND SPEED M/S
99.TH
95.TH
85.TH
R(BAR)
50.TH
R(MOD)
15.TH
5.TH
0 22.5 45.0 67.5 90.0 112.5 135.0 157.5 180.0 202.5 225.0 247.5 270.0 292.5 315.0 337.5 360.0
CONDITIONAL WIND SPEED GIVEN WIND DIRECTION

Figure A-68.

APPENDIX B

RANGE SPECIFIC INFORMATION AND THERMODYNAMIC QUANTITIES FOR POINT MUGU, CALIFORNIA

1. Range Specific Information

To prevent further character size reduction for tables I through IV, certain range-specific information has been omitted. This important information is given in table B-1.

TABLE B-1

Header Record 0-30 Km		Header Record 32-70 Km	
Table Number	0	Table Number	0
Data Source (1 = DATSAV, 2 = WDC-A)	1	Data Source (1 = DATSAV, 2 = WDC-A)	2
Call Letters	NTD	Call Letters	NTD
WMO Number	723910	WMO Number	723910
Latitude	34°,07'	Latitude	34°,07'
Direction (N or S)	N	Direction (N or S)	N
Longitude	119°,07'	Longitude	119°,07'
Direction (E or W)	W	Direction (E or W)	W
Elevation in Meters	4	Elevation in Meters	4
Start Period of Record (Mo-Yr)	160	Start Period of Record (Mo-Yr)	169
End Period of Record (Mo-Yr)	1279	End Period of Record (Mo-Yr)	1278
No. of Time Windows (0, 1 or 2)	1	No. of Time Windows (0, 1 or 2)	1
Start Time Window #1 (Hr-MNZ)	1200	Start Time Window #1 (Hr-MNZ)	1200
End Time Window #1	2200	End Time Window #1	2200
Start Time Window #2	0	Start Time Window #2	0
End Time Window #2	0	End Time Window #2	0
Date of RRA	880	Date of RRA	1080
Altitude Range of RRA Low Level (Km)	0	Altitude Range of RRA High Level (Km)	30
Altitude Range of RRA High Level (Km)	30	Altitude Range of RRA High Level (Km)	70
Standard Deviation of Thermodynamic Limits	6.0	Standard Deviation of Thermodynamic Limits	6.0
Wind Limits	6.0	Wind Limits	6.0

2. Thermodynamic Quantities

This section presents examples of further computations and graphical displays of pressure, density, and virtual temperature statistics that can be derived from the data given in tables II, III, and IV. No attempt is made to

present complete nor exhaustive illustrations that can be made to aid in visualizing the relationships that can be made from the data in tables II and IV. The choices are those that aided the committee to verify the reasonableness of the tabulations.

2.1 Monthly Mean from the Annual Mean

The hydrostatic model values in table IV are used to compute (1) the monthly mean differences relative to the annual mean values of pressure, density, and virtual temperature expressed in percent and (2) the monthly mean difference in virtual temperature for the annual mean virtual temperature expressed in degrees Kelvin. Examples of these four statistics are given in table B-2 for January and table B-3 for July. Graphical displays of the four statistics contained in tables B-2 and B-3 are shown in figures B-1 through B-8. Also, the relative differences between the monthly mean values from table IV-1 through IV-12 for all months from the annual mean values (table IV-13) are illustrated in figure B-9 for pressure, in figure B-10 for density, and in figure B-11 for virtual temperature. The monthly mean virtual temperature differences from the annual mean virtual temperature for all months are given in figure B-12. The simple sum of the monthly mean differences from the annual mean values of these quantities is not zero. This is because the annual mean statistical parameters are computed (see section III.C.3 of text) by weighting the monthly means by the number of observations in each month.

2.2 Coefficients of Variation and Derived Correlation Coefficients

The coefficient of variation, C_V, is defined by the standard deviation with respect to the mean divided by the mean. The coefficients of variation for pressure, C_VP, and density, C_VD, were computed using the standard deviations from table II and the hydrostatic mean values from table IV. The coefficient of variation for temperature uses the standard deviations of virtual temperature from table III to the altitude where virtual temperature exists. Above this altitude, the standard deviations of temperature are from table II. The mean values for temperature (virtual temperature to the altitude where it exists) are taken from table IV. No distinction is made in the table headings in table B-4 (January) and table B-5 (July) and all related figures between virtual temperature and temperature.

From the coefficients of variation for pressure, density, and temperature (virtual temperature to the altitude where it exists), the correlation coefficients between these quantities are derived using Buell's method (see reference in text). The equations for these derived correlation coefficients are

$$r(P,T) = \frac{(C_VT)^2 + (C_VP)^2 - (C_VD)^2}{2\,[C_VT \cdot C_VP]} \quad , \qquad \text{(B-1)}$$

$$r(P,D) = \frac{(C_V D)^2 - (C_V T)^2 + (C_V P)^2}{2\,[C_V P \cdot C_V D]} \quad , \tag{B-2}$$

$$r(T,D) = \frac{(C_V P)^2 - (C_V D)^2 - (C_V T)^2}{2\,[C_V T \cdot C_V D]} \quad , \tag{B-3}$$

The correlation coefficients in tables B-4 and B-5 are derived from the above equations.

A test for the validity of the derived correlation coefficients is that all three of the following inequalities be satisfied.

$$\begin{aligned} C_V P - [C_V D + C_V T] &< 0 \\ C_V D - [C_V T + C_V P] &< 0 \\ C_V T - [C_V P + C_V D] &< 0 \end{aligned} \tag{B-4}$$

In these examples (tables B-4 and B-5) the numerical values from equation (B-4) are all negative; hence, the derived correlation test is considered valid. The rare exceptions to this test for several RRAs occur at the extreme highest altitudes, where samples sizes for the statistical sample are small.

The statistical parameters from table B-4 (January) and table B-5 (July) are illustrated in figures B-13 through B-16.

For all months the $C_V P$ values are shown in figure B-17, the $C_V D$ values are shown in figure B-18, and $C_V T$ values are shown in figure B-19. If the abscissa on the figures for the coefficient of variation were multiplied by 100, these figures would show the percentage of the random dispersion of these quantities over the month with respect to the monthly mean for these thermodynamic quantities.

The derived correlation coefficients for all months are illustrated in the following figures:

a) Figure B-20 gives r(P,D).

b) Figure B-21 gives r(P,T).

c) Figure B-22 gives r(T,D).

TABLE B-2.

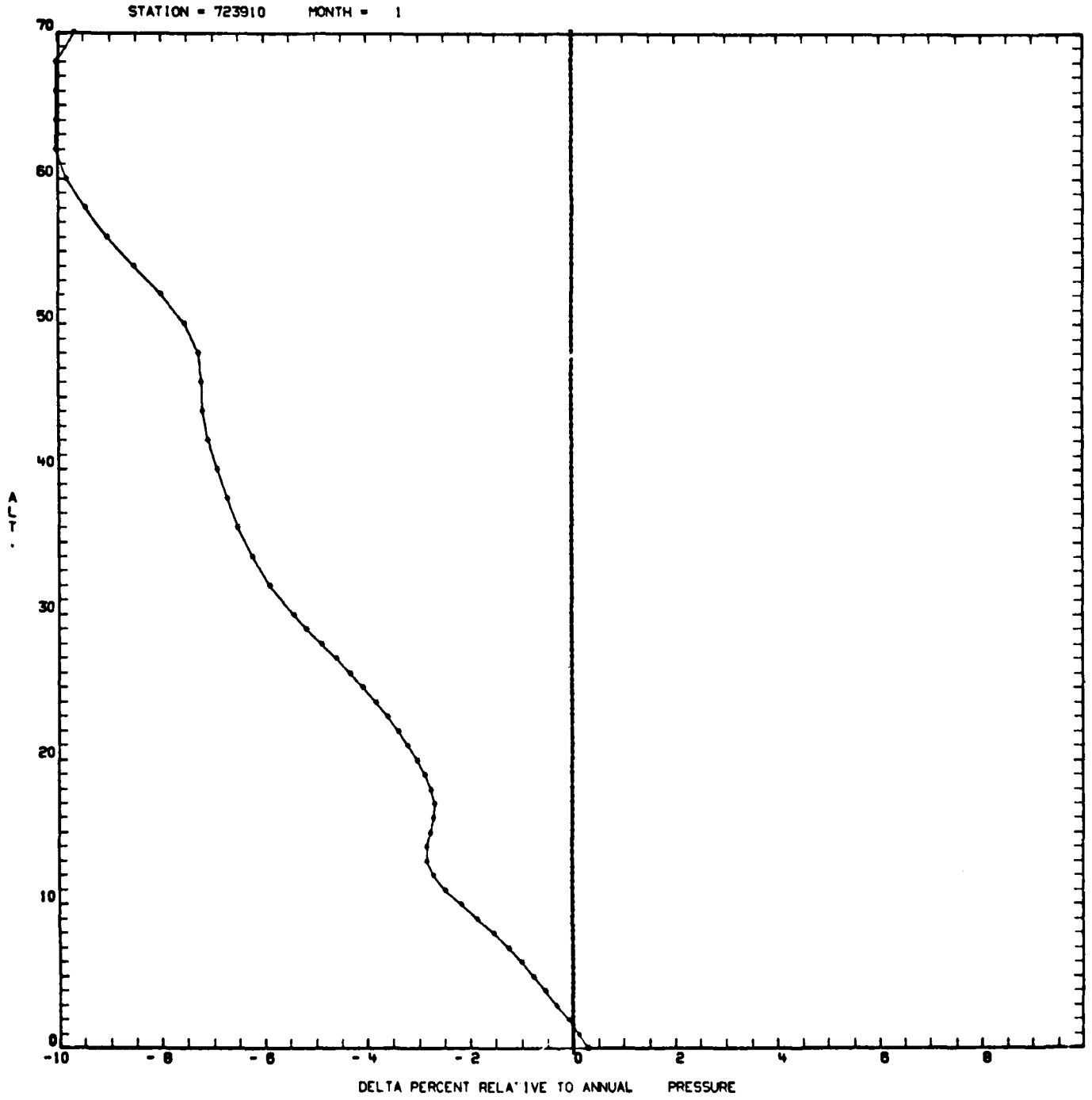
STATION 723910 MONTH 1
DELTAS IN PERCENT RELATIVE TO ANNUAL

LEVEL	PRESSURE	DENSITY	TEMP.	TMO-TANN(DEG.K)
.000	.30	1.47	-1.19	-3.43
.004	.30	1.47	-1.18	-3.42
1.000	.12	1.74	-1.66	-4.79
2.000	-.09	1.83	-1.90	-5.40
3.000	-.32	1.48	-1.76	-4.91
4.000	-.53	1.18	-1.70	-4.62
5.000	-.76	1.04	-1.77	-4.70
6.000	-.99	.89	-1.86	-4.81
7.000	-1.25	.71	-1.96	-4.92
8.000	-1.53	.57	-2.08	-5.08
9.000	-1.84	.40	-2.22	-5.24
10.000	-2.16	.09	-2.24	-5.14
11.000	-2.47	-.62	-1.87	-4.16
12.000	-2.71	-1.47	-1.23	-2.69
13.000	-2.82	-2.54	-.29	-.62
14.000	-2.82	-3.15	.36	.76
15.000	-2.75	-3.23	.5[illegible]	1.06
16.000	-2.69	-2.94	.28	.59
17.000	-2.68	-2.48	-.17	-.35
18.000	-2.74	-2.16	-.59	-1.24
19.000	-2.86	-2.01	-.89	-1.87
20.000	-3.01	-1.96	-1.07	-2.27
21.000	-3.19	-2.03	-1.18	-2.54
22.000	-3.38	-2.09	-1.31	-2.84
23.000	-3.59	-2.18	-1.44	-3.14
24.000	-3.82	-2.27	-1.57	-3.45
25.000	-4.06	-2.50	-1.62	-3.58
26.000	-4.31	-2.55	-1.81	-4.02
27.000	-4.59	-2.72	-1.93	-4.32
28.000	-4.86	-2.99	-1.91	-4.31
29.000	-5.14	-3.31	-1.91	-4.34
30.000	-5.41	-3.65	-1.83	-4.20
32.000	-5.87	-4.20	-1.43	-3.33
34.000	-6.21	-4.80	-1.12	-2.66
36.000	-6.49	-5.27	-.93	-2.26
38.000	-6.70	-5.68	-.70	-1.73
40.000	-6.89	-5.73	-.86	-2.19
42.000	-7.07	-6.16	-.60	-1.56
44.000	-7.17	-6.59	-.23	-.60
46.000	-7.20	-6.87	.03	.07
48.000	-7.27	-6.37	-.61	-1.64
50.000	-7.52	-5.69	-1.55	-4.13
52.000	-7.97	-5.50	-2.26	-5.99
54.000	-8.52	-6.02	-2.30	-6.04
56.000	-9.03	-6.79	-2.05	-5.34
58.000	-9.47	-7.66	-1.62	-4.17
60.000	-9.82	-8.33	-1.24	-3.16
62.000	-10.12	-8.66	-1.26	-3.14
64.000	-10.29	-9.85	-.12	-.30
66.000	-10.28	-10.19	.20	.48
68.000	-10.10	-10.88	1.23	2.77
70.000	-9.67	-11.13	2.03	4.43

TABLE B-3.

STATION 723910 MONTH 7
DELTAS IN PERCENT RELATIVE TO ANNUAL

LEVEL	PRESSURE	DENSITY	TEMP.	TMO-TANN(DEG.K)
.000	-.20	-1.47	1.23	3.57
.004	-.20	-1.31	1.11	3.20
1.000	.03	-2.66	2.78	8.03
2.000	.37	-2.69	3.14	8.94
3.000	.73	-2.12	2.91	8.12
4.000	1.06	-1.55	2.66	7.24
5.000	1.39	-1.15	2.58	6.85
6.000	1.73	-.98	2.74	7.10
7.000	2.12	-.88	3.02	7.60
8.000	2.54	-.72	3.29	8.03
9.000	3.02	-.44	3.49	8.24
10.000	3.53	.02	3.50	8.03
11.000	4.03	.96	3.04	6.77
12.000	4.43	2.23	2.16	4.71
13.000	4.66	4.02	.62	1.34
14.000	4.64	5.60	-.88	-1.88
15.000	4.43	6.17	-1.65	-3.48
16.000	4.14	5.82	-1.57	-3.28
17.000	3.93	5.02	-1.01	-2.11
18.000	3.82	4.08	-.25	-.53
19.000	3.83	3.37	.36	.76
20.000	3.92	3.15	.75	1.59
21.000	4.06	3.00	1.03	2.21
22.000	4.24	3.10	1.10	2.38
23.000	4.42	3.24	1.14	2.48
24.000	4.60	3.35	1.21	2.66
25.000	4.80	3.47	1.28	2.82
26.000	5.01	3.59	1.37	3.06
27.000	5.23	3.73	1.43	3.21
28.000	5.46	3.97	1.44	3.25
29.000	5.67	4.19	1.42	3.22
30.000	5.89	4.41	1.45	3.31
32.000	6.31	5.31	1.29	3.02
34.000	6.68	5.85	1.16	2.76
36.000	6.99	6.36	.93	2.26
38.000	7.25	6.73	.84	2.08
40.000	7.50	6.92	.91	2.30
42.000	7.73	7.29	.76	1.98
44.000	7.89	7.91	.35	.93
46.000	7.96	8.14	.20	.53
48.000	8.03	8.08	.27	.71
50.000	8.10	8.17	.30	.81
52.000	8.17	8.32	.21	.56
54.000	8.18	8.70	-.14	-.37
56.000	8.08	9.10	-.59	-1.53
58.000	7.79	9.81	-1.52	-3.91
60.000	7.29	9.82	-1.98	-5.03
62.000	6.58	10.10	-2.88	-7.16
64.000	5.75	9.03	-2.70	-6.50
66.000	4.87	8.47	-3.02	-7.08
68.000	3.94	7.48	-2.91	-6.56
70.000	3.07	6.13	-2.55	-5.56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ALT.
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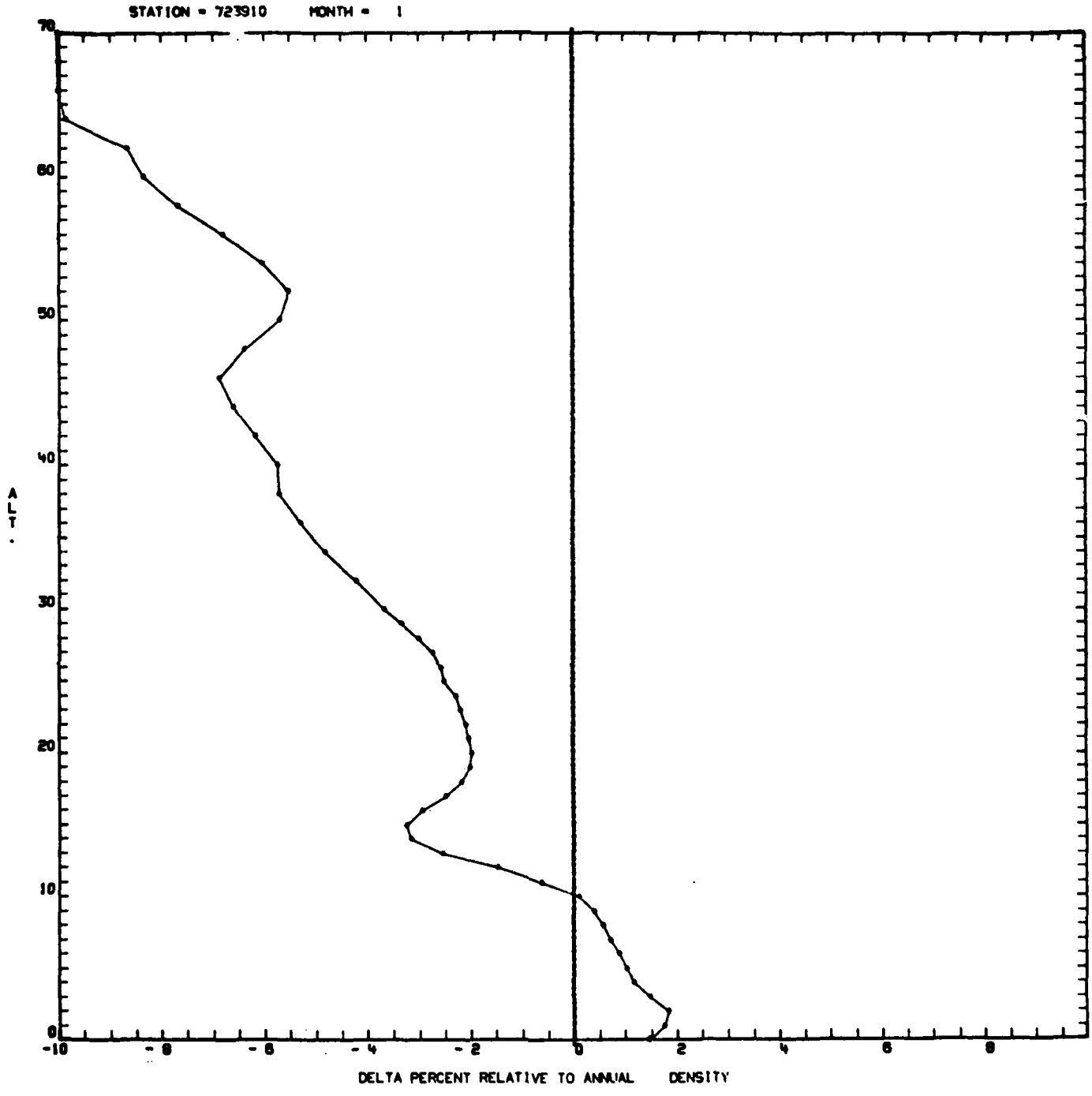
2
4
6
8
DELTA PERCENT RELA'IVE TO ANNUAL PRESSURE

Figure B-1.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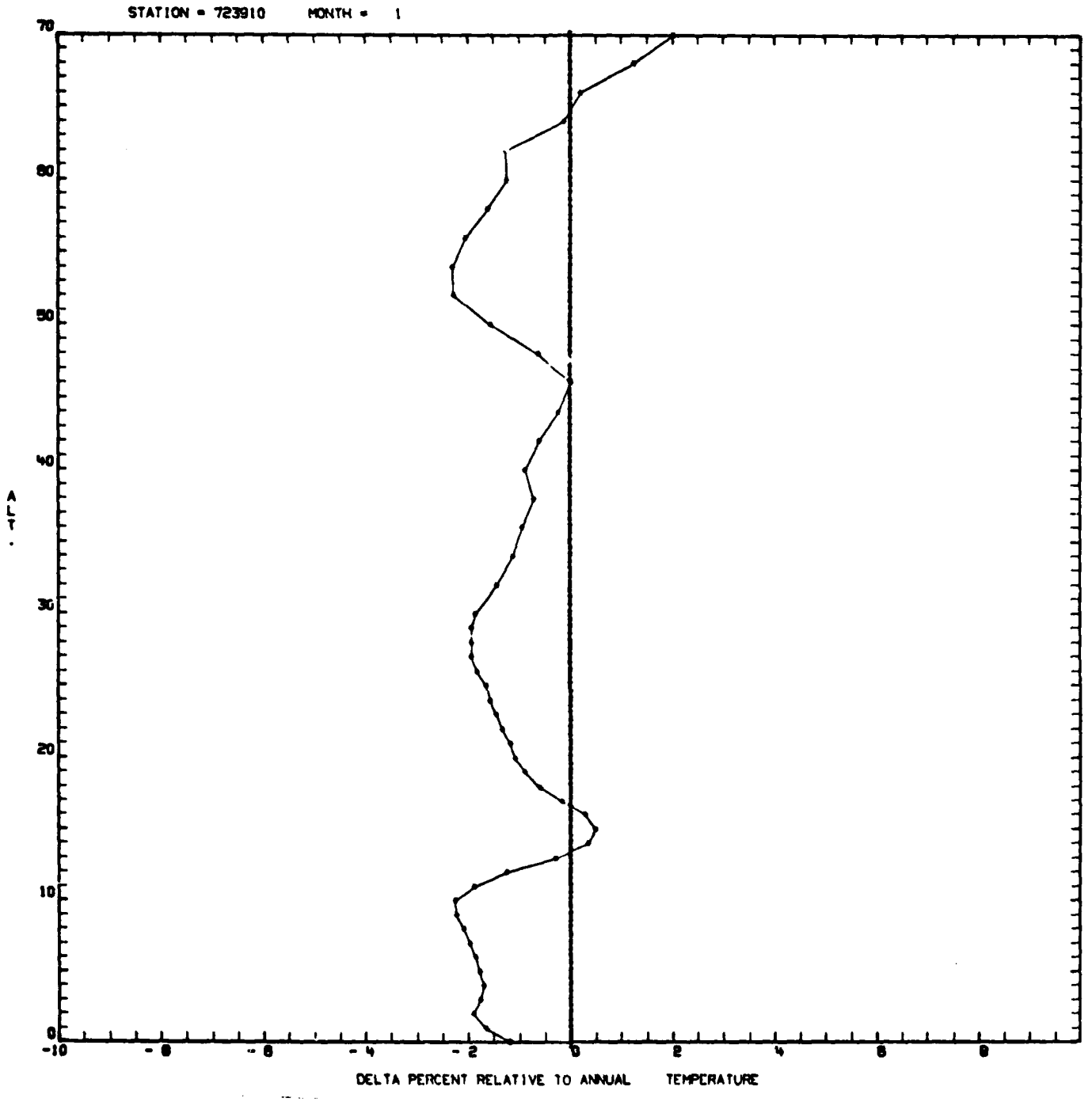
6
8
DELTA PERCENT RELATIVE TO ANNUAL DENSITY

Figure B-2.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ALT
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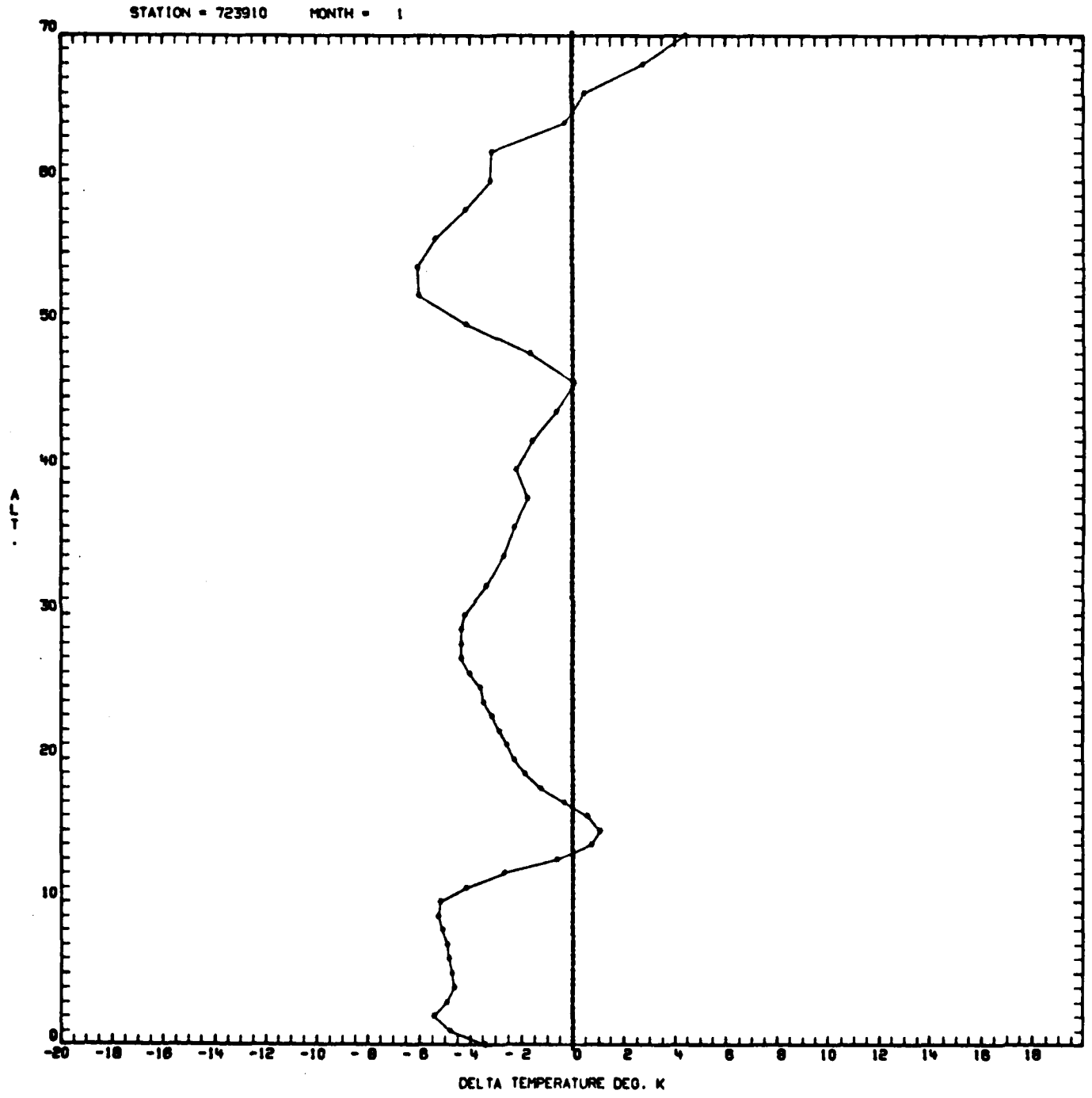
6
8
DELTA PERCENT RELATIVE TO ANNUAL TEMPERATURE

Figure B-3.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-8
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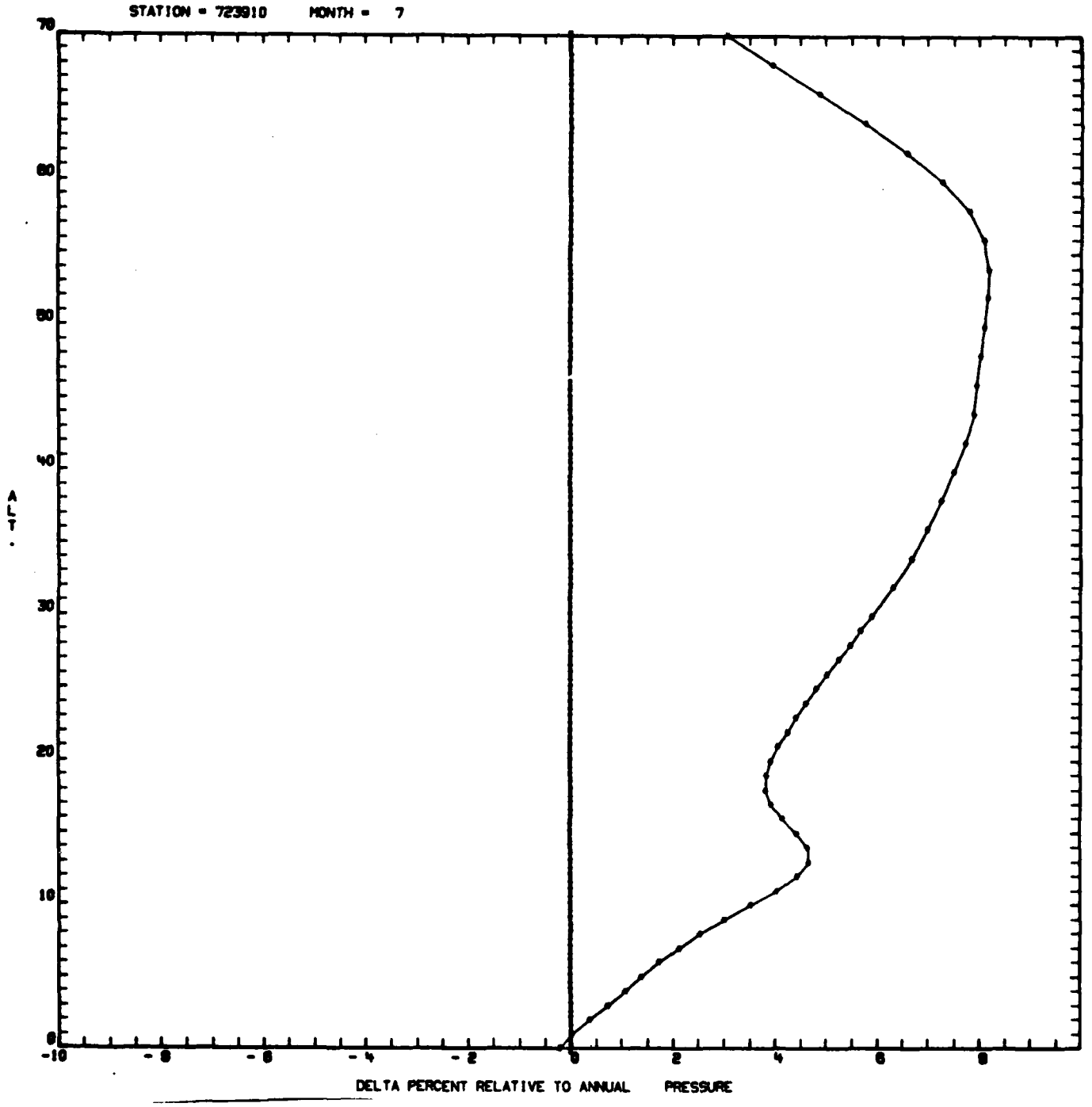
8
10
12
14
16
18
DELTA TEMPERATURE DEG. K

Figure B-4.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ALT.
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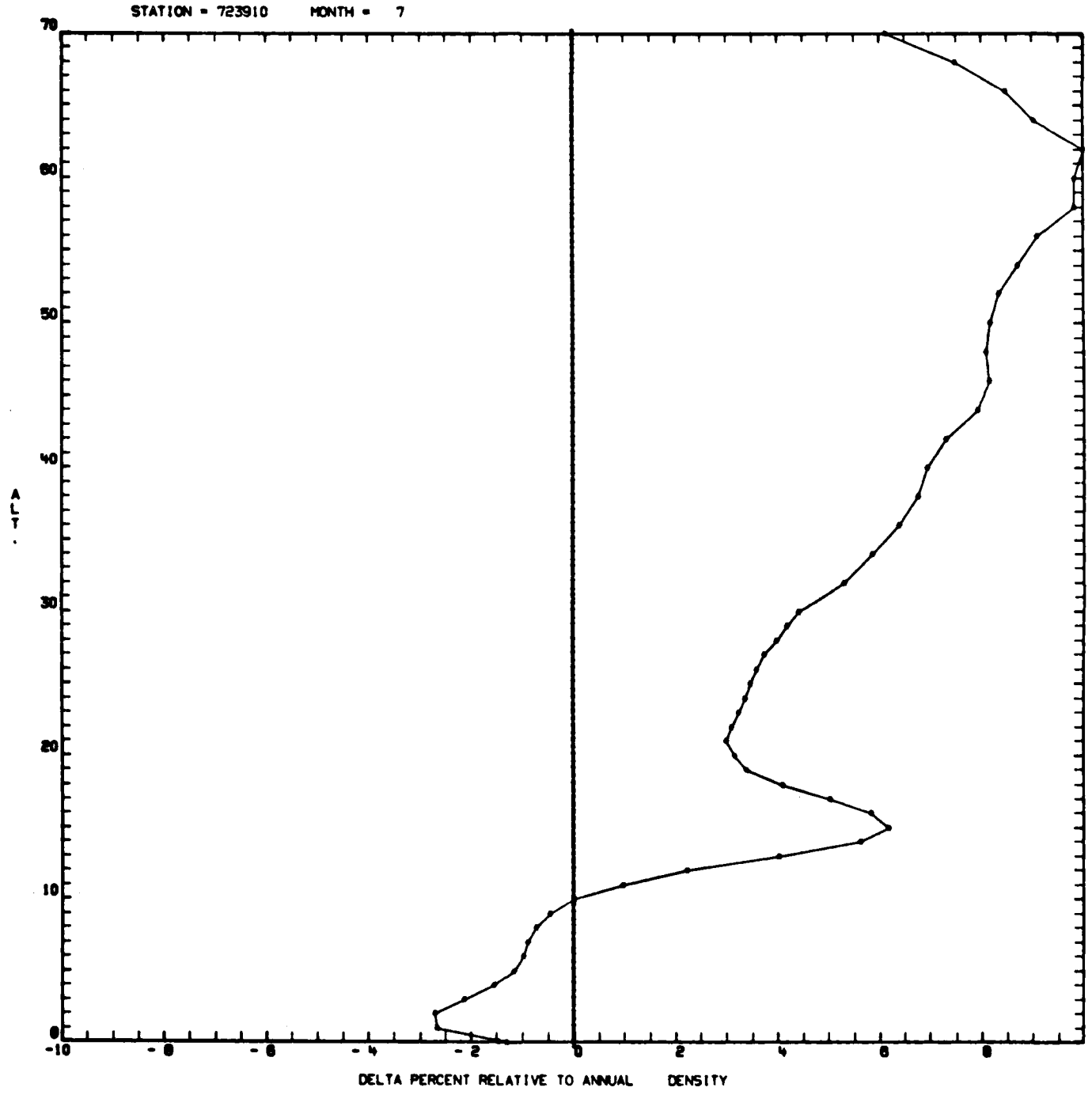
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL PRESSURE

Figure B-5.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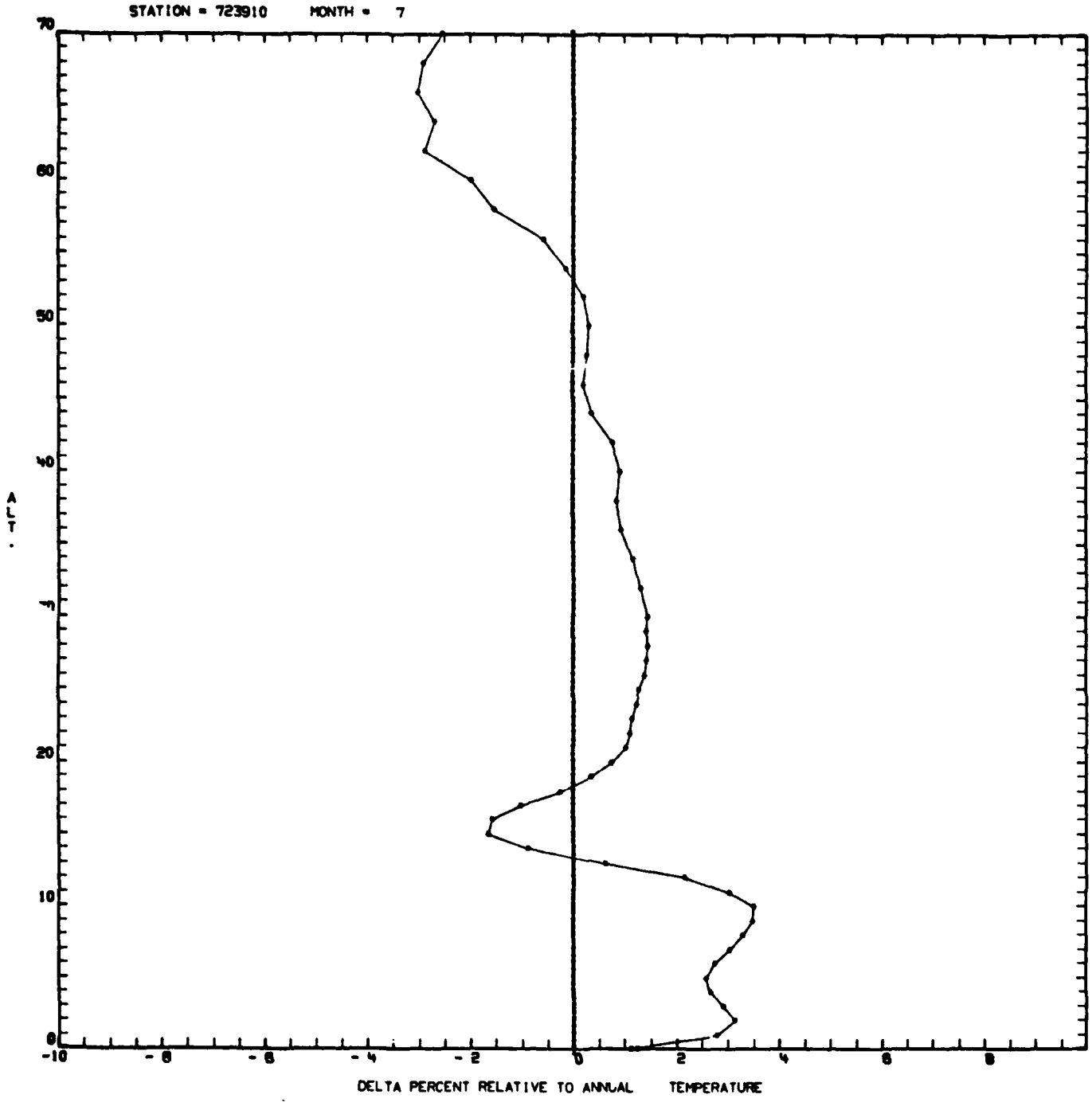
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL DENSITY

Figure B-6.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30
20
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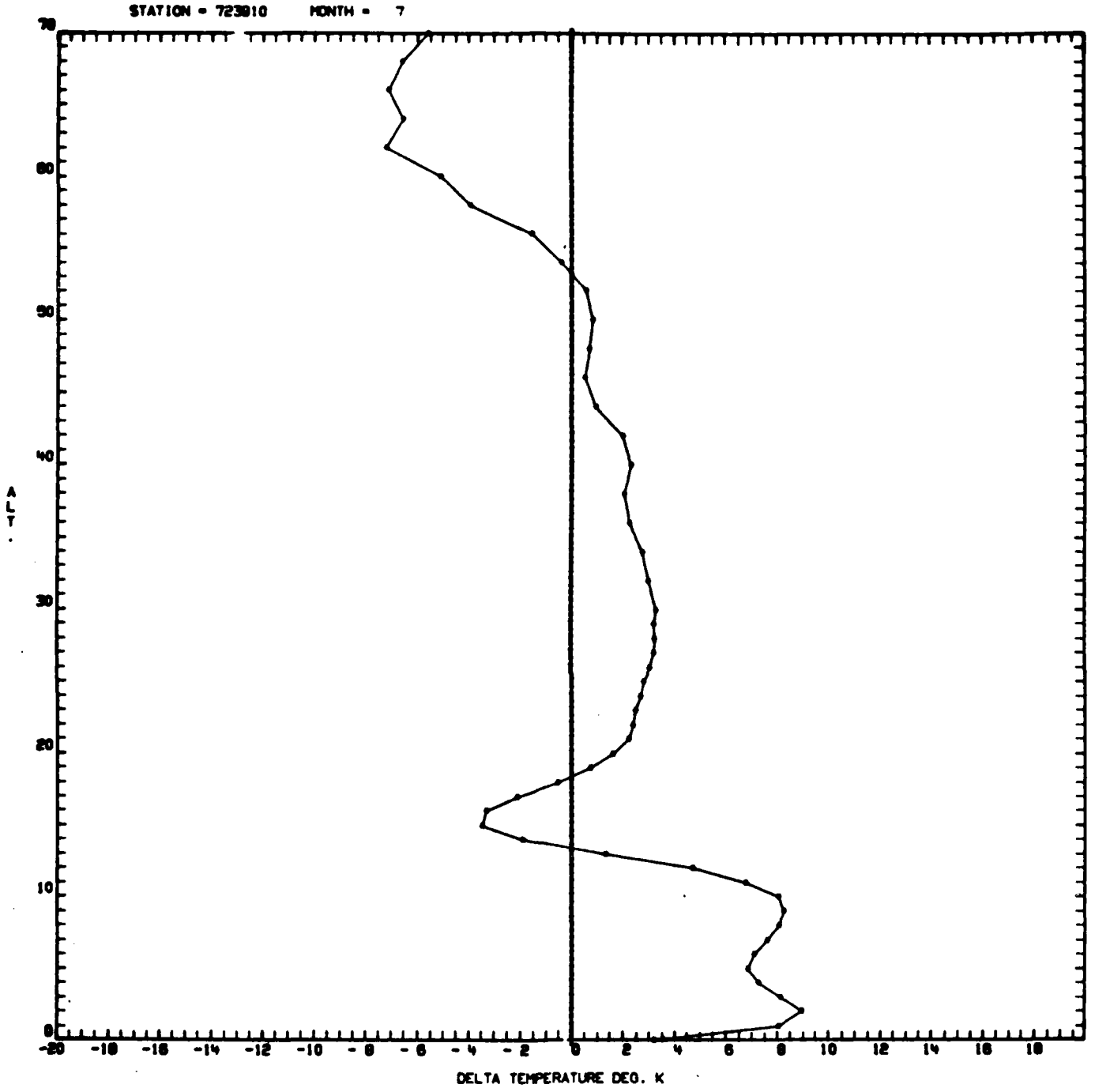
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL TEMPERATURE

Figure B-7.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-10
-8
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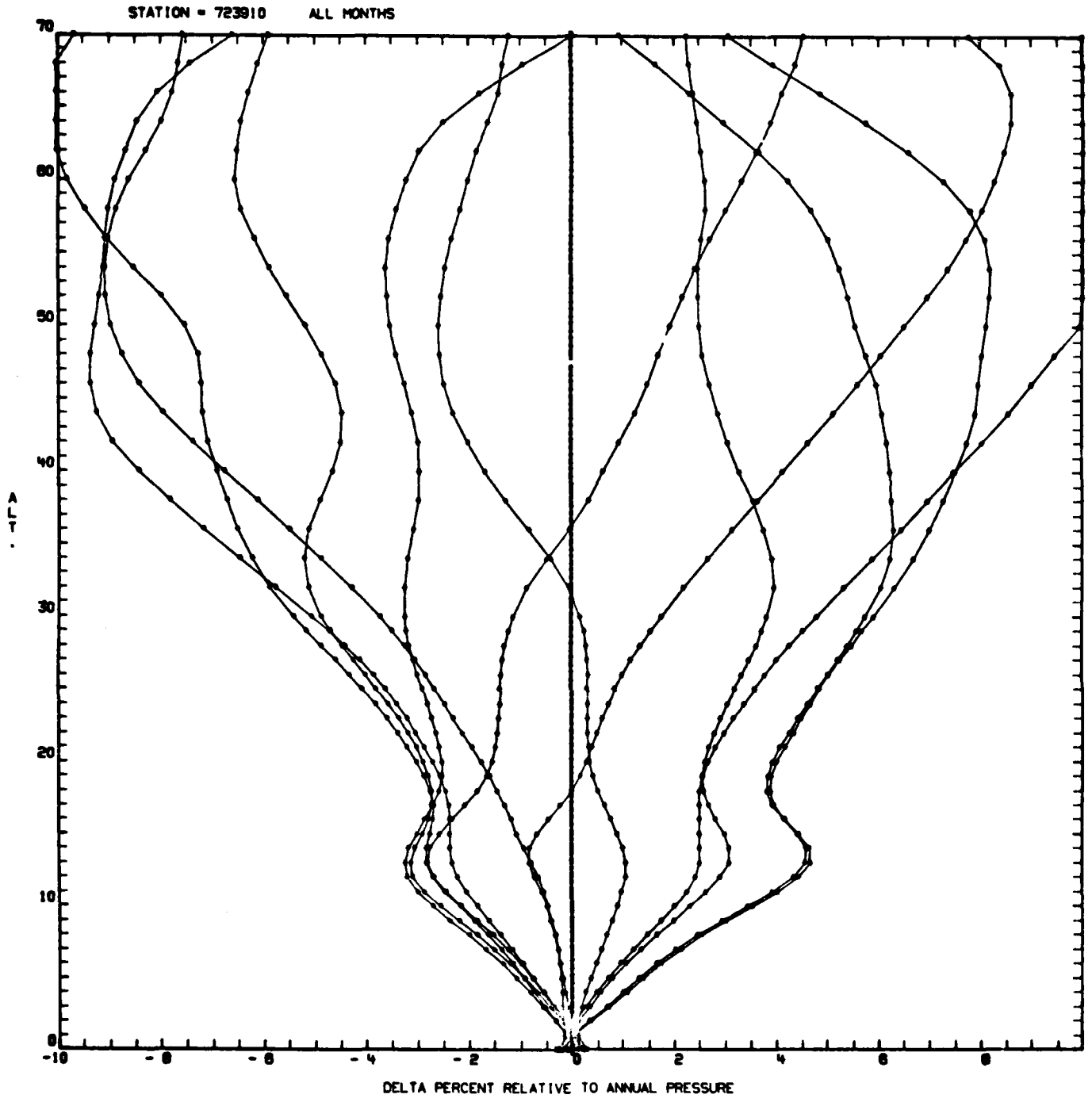
4
6
8
10
12
14
16
18
DELTA TEMPERATURE DEG. K

Figure B-8.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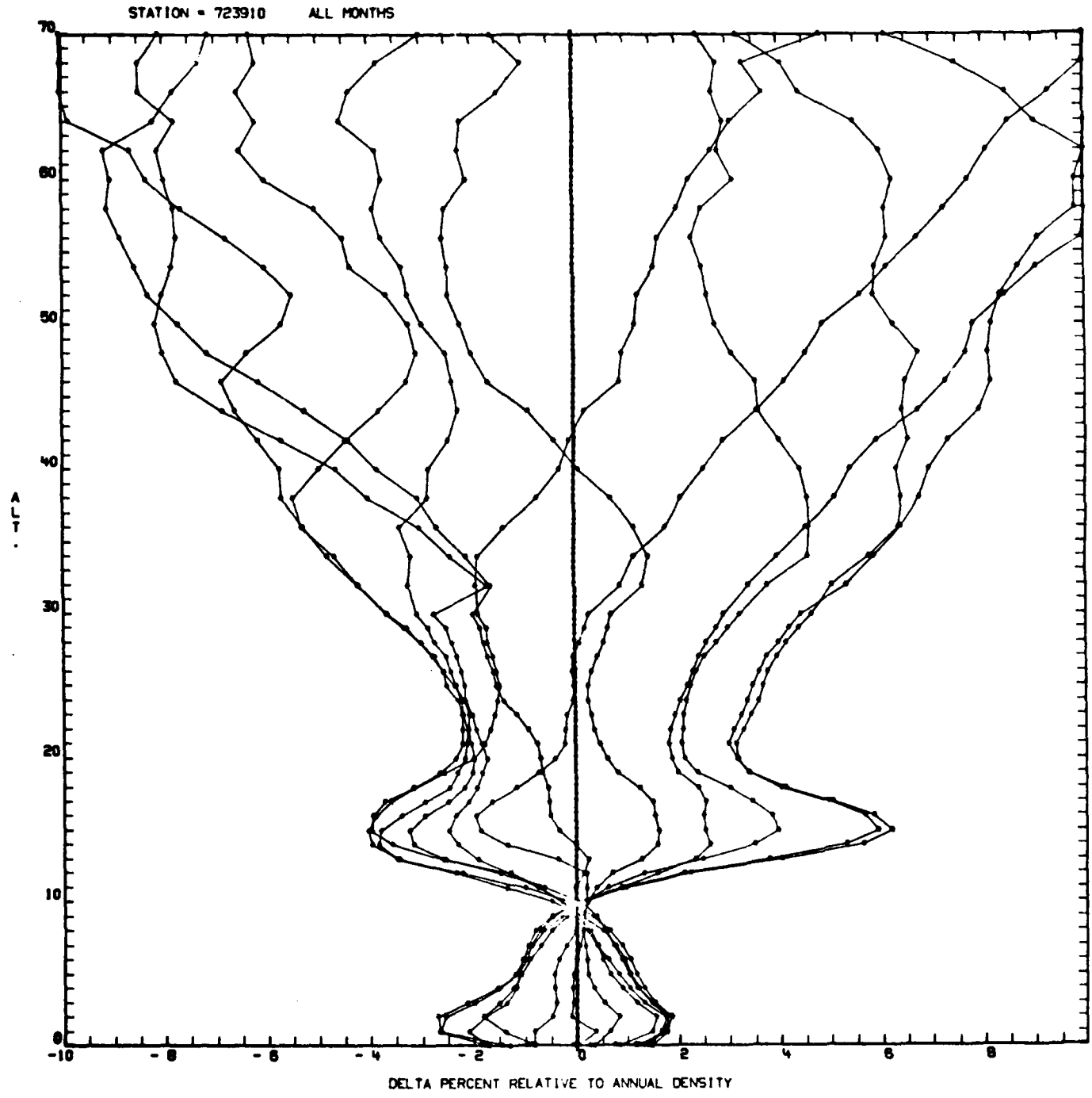
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL PRESSURE

Figure B-9.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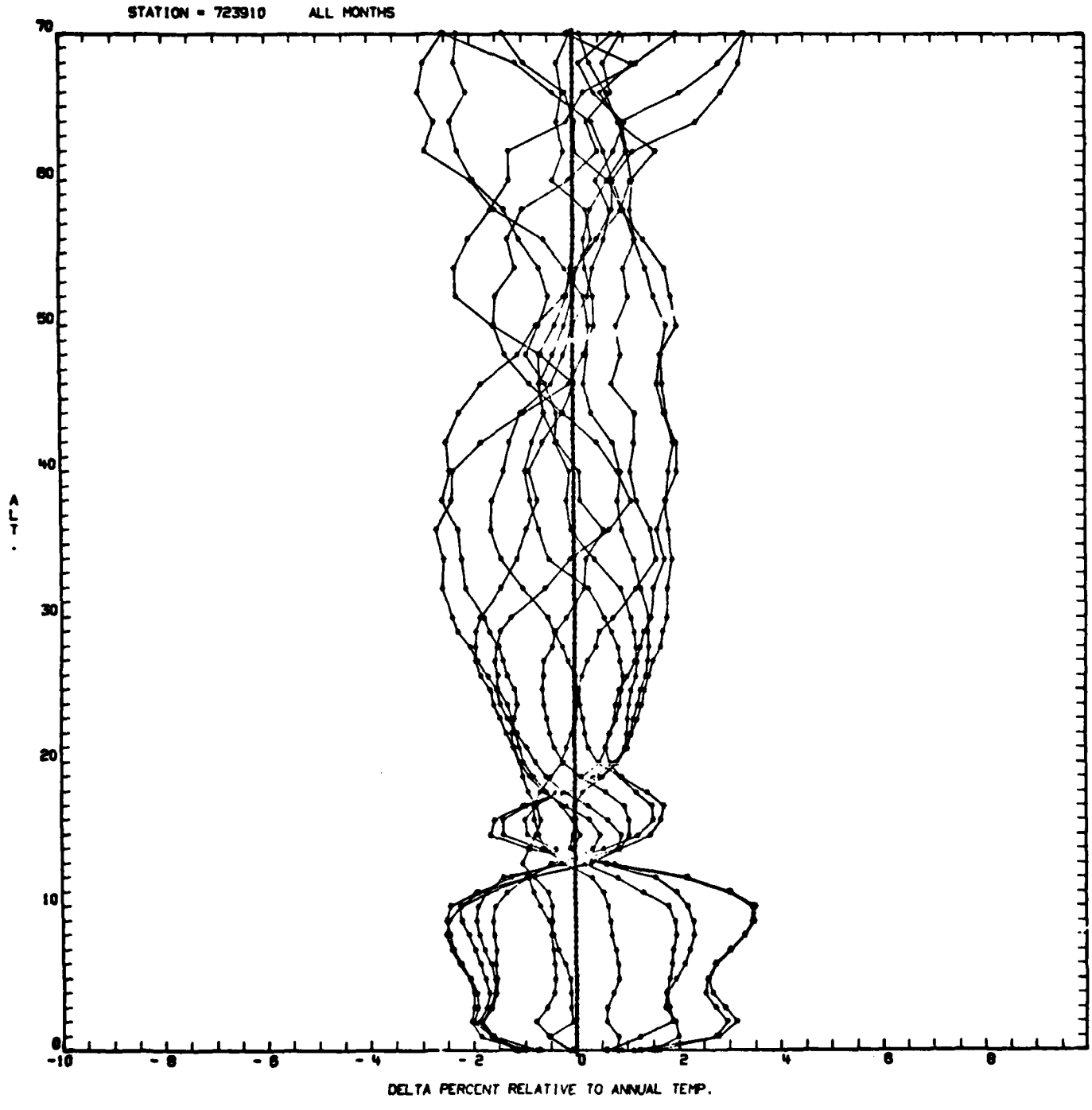
0
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL DENSITY

Figure B-10.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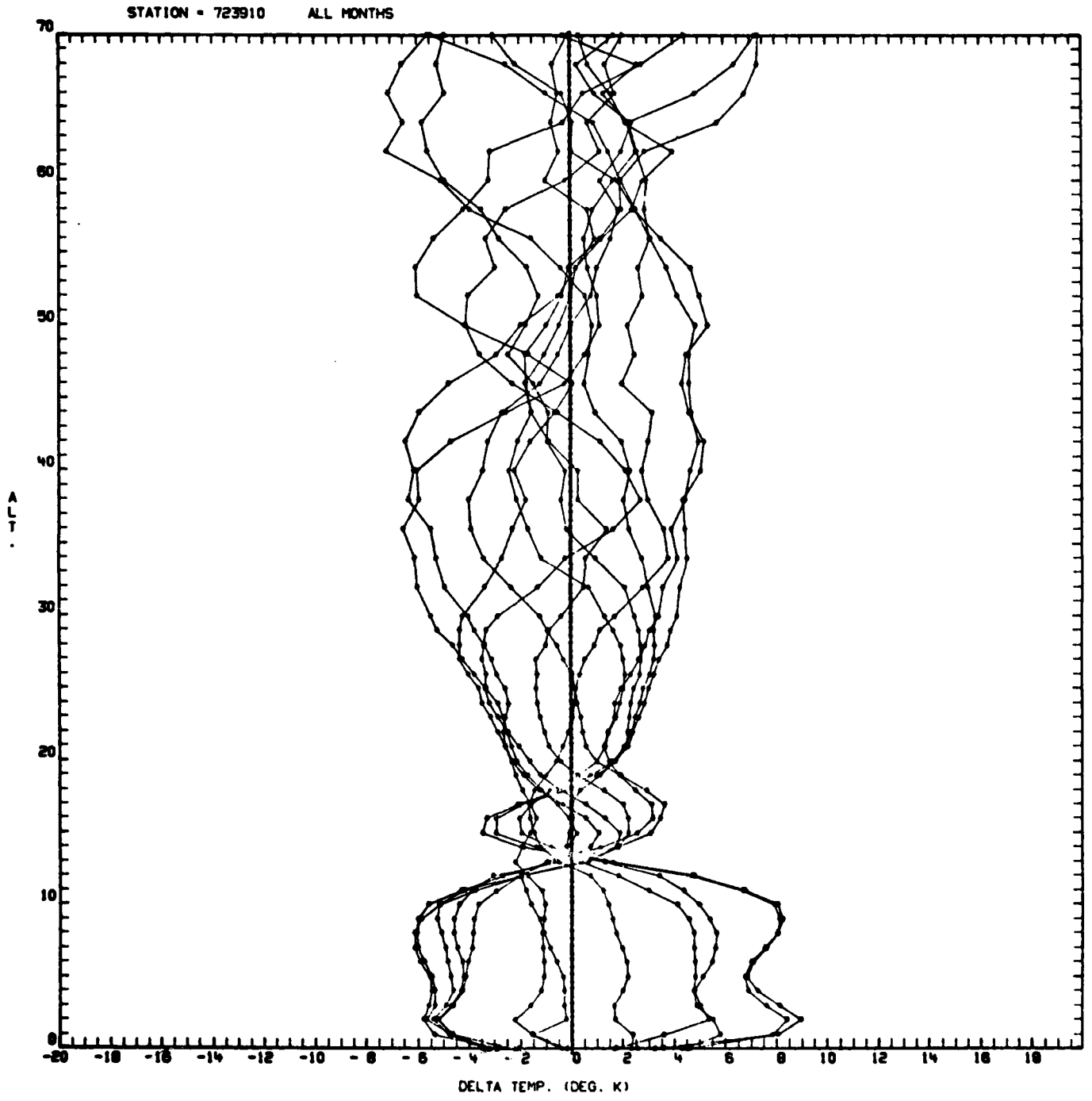
2
4
6
8
DELTA PERCENT RELATIVE TO ANNUAL TEMP.

Figure B-11.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DELTA TEMP. (DEG. K)

Figure B-12.

TABLE B-4.

STATION 723910 MONTH 1

LEVEL	CVP	CVD	CVT	R(P,T)	R(P,D)	R(T,D)	DCVP	DCVD	DCVT
.000	.0040	.0186	.0185	.1038	.1134	-.9764	-.0331	-.0040	-.0040
.004	.0039	.0186	.0185	.0909	.1197	-.9778	-.0332	-.0038	-.0040
1.000	.0045	.0165	.0184	.5218	-.3090	-.9726	-.0305	-.0064	-.0026
2.000	.0061	.0153	.0194	.7627	-.5706	-.9664	-.0286	-.0102	-.0020
3.000	.0080	.0130	.0190	.8440	-.6176	-.9431	-.0240	-.0141	-.0020
4.000	.0101	.0105	.0182	.8821	-.5720	-.8910	-.0186	-.0178	-.0023
5.000	.0122	.0095	.0185	.8855	-.4335	-.8026	-.0158	-.0212	-.0033
6.000	.0144	.0087	.0187	.8924	-.2564	-.6649	-.0130	-.0244	-.0045
7.000	.0166	.0093	.0194	.8787	-.0431	-.5148	-.0120	-.0268	-.0065
8.000	.0190	.0103	.0194	.8567	.2306	-.3043	-.0107	-.0281	-.0099
9.000	.0212	.0130	.0182	.7922	.5221	-.1069	-.0100	-.0264	-.0161
10.000	.0230	.0193	.0170	.5680	.6915	-.2017	-.0133	-.0206	-.0254
11.000	.0239	.0287	.0183	.1007	.7711	-.5559	-.0231	-.0136	-.0343
12.000	.0237	.0376	.0253	-.1739	.7485	-.7832	-.0392	-.0115	-.0360
13.000	.0227	.0380	.0244	-.3013	.7000	-.6223	-.0398	-.0091	-.0363
14.000	.0215	.0337	.0192	-.3726	.8492	-.8064	-.0314	-.0069	-.0360
15.000	.0201	.0329	.0175	-.5269	.8916	-.8546	-.0303	-.0047	-.0354
16.000	.0184	.0335	.0188	-.6266	.8992	-.9044	-.0340	-.0036	-.0331
17.000	.0163	.0325	.0192	-.6692	.8985	-.9274	-.0353	-.0030	-.0296
18.000	.0144	.0296	.0186	-.6004	.8642	-.9213	-.0339	-.0034	-.0254
19.000	.0130	.0255	.0170	-.4373	.8007	-.8889	-.0295	-.0045	-.0215
20.000	.0122	.0215	.0154	-.1956	.7087	-.8304	-.0247	-.0062	-.0182
21.000	.0120	.0185	.0150	.0722	.5888	-.7637	-.0215	-.0085	-.0155
22.000	.0123	.0159	.0148	.3210	.4778	-.6786	-.0183	-.0112	-.0135
23.000	.0134	.0150	.0153	.4603	.4204	-.6120	-.0170	-.0137	-.0130
24.000	.0146	.0148	.0161	.5378	.4005	-.5572	-.0163	-.0159	-.0133
25.000	.0161	.0145	.0170	.6164	.3917	-.4830	-.0153	-.0186	-.0137
26.000	.0177	.0142	.0163	.6542	.4949	-.3334	-.0128	-.0198	-.0156
27.000	.0194	.0149	.0163	.6642	.5772	-.2271	-.0118	-.0208	-.0180
28.000	.0209	.0162	.0164	.6456	.6367	-.1778	-.0117	-.0211	-.0208
29.000	.0231	.0182	.0159	.6213	.7294	-.0829	-.0109	-.0208	-.0254
30.000	.0247	.0208	.0171	.5589	.7298	-.1590	-.0132	-.0211	-.0284
32.000	.0226	.0320	.0246	.0862	.6411	-.7093	-.0340	-.0153	-.0299
34.000	.0239	.0350	.0288	.1290	.5761	-.7363	-.0399	-.0177	-.0300
36.000	.0259	.0395	.0354	.1981	.4767	-.7672	-.0491	-.0218	-.0299
38.000	.0290	.0385	.0407	.4297	.2993	-.7329	-.0502	-.0312	-.0268
40.000	.0344	.0348	.0403	.5747	.3234	-.5886	-.0407	-.0399	-.0290
42.000	.0406	.0379	.0402	.5600	.4764	-.4616	-.0375	-.0429	-.0383
44.000	.0454	.0420	.0362	.4876	.6586	-.3359	-.0329	-.0396	-.0512
46.000	.0494	.0457	.0335	.4456	.7542	-.2518	-.0298	-.0372	-.0616
48.000	.0529	.0447	.0279	.5357	.8501	.0107	-.0197	-.0361	-.0698
50.000	.0566	.0491	.0244	.5019	.9033	.0824	-.0169	-.0318	-.0813
52.000	.0600	.0555	.0241	.3782	.9155	-.0261	-.0197	-.0286	-.0914
54.000	.0611	.0586	.0217	.2928	.9348	-.0659	-.0192	-.0243	-.0979
56.000	.0607	.0598	.0254	.2458	.9114	-.1749	-.0244	-.0263	-.0951
58.000	.0609	.0586	.0256	.3012	.9091	-.1234	-.0232	-.0280	-.0939
60.000	.0664	.0595	.0369	.4550	.8333	-.1131	-.0300	-.0438	-.0889
62.000	.0589	.0515	.0427	.5243	.7082	-.2298	-.0354	-.0501	-.0677
64.000	.0634	.0537	.0458	.5581	.7053	-.1946	-.0361	-.0556	-.0712
66.000	.0679	.0484	.0590	.7166	.5285	-.2134	-.0396	-.0784	-.0573
68.000	.0871	.0619	.0638	.7032	.6808	-.0420	-.0387	-.0889	-.0852
70.000	.0658	.0617	.0415	.4112	.7901	-.2339	-.0374	-.0456	-.0860

TABLE B-5.

STATION 723910 MONTH 7

LEVEL	CVP	CVD	CVT	R(P,T)	R(P,D)	R(T,D)	DCVP	DCVD	DCVT
.000	.0020	.0106	.0108	.2004	-.0159	-.9828	-.0194	-.0022	-.0018
.004	.0020	.0106	.0108	.2161	-.0293	-.9823	-.0193	-.0023	-.0018
1.000	.0021	.0134	.0138	.2434	-.0904	-.9380	-.0250	-.0025	-.0018
2.000	.0028	.0089	.0099	.5109	-.2627	-.9637	-.0161	-.0038	-.0017
3.000	.0033	.0071	.0082	.5183	-.1291	-.9150	-.0120	-.0045	-.0022
4.000	.0039	.0068	.0076	.4444	.0745	-.8603	-.0105	-.0046	-.0031
5.000	.0044	.0073	.0082	.4647	.0756	-.8479	-.0111	-.0053	-.0034
6.000	.0050	.0073	.0090	.5881	-.0420	-.8327	-.0113	-.0067	-.0033
7.000	.0059	.0072	.0098	.6870	-.1201	-.8039	-.0111	-.0085	-.0032
8.000	.0069	.0073	.0104	.7150	-.0753	-.7509	-.0108	-.0100	-.0038
9.000	.0081	.0082	.0116	.7070	-.0133	-.7166	-.0117	-.0115	-.0047
10.000	.0094	.0087	.0125	.7191	.0462	-.6610	-.0118	-.0132	-.0056
11.000	.0108	.0081	.0115	.7397	.2807	-.4382	-.0088	-.0142	-.0073
12.000	.0115	.0099	.0105	.5947	.5305	-.3660	-.0089	-.0120	-.0109
13.000	.0124	.0142	.0107	.2522	.6812	-.5366	-.0125	-.0089	-.0158
14.000	.0126	.0171	.0114	-.0134	.7448	-.6772	-.0159	-.0069	-.0182
15.000	.0123	.0191	.0128	-.1532	.7478	-.7707	-.0196	-.0060	-.0186
16.000	.0120	.0190	.0126	-.1987	.7627	-.7855	-.0196	-.0055	-.0185
17.000	.0118	.0174	.0112	-.1475	.7722	-.7423	-.0168	-.0056	-.0180
18.000	.0117	.0162	.0105	-.0655	.7649	-.6929	-.0150	-.0060	-.0175
19.000	.0116	.0144	.0088	.0123	.7943	-.5978	-.0116	-.0059	-.0172
20.000	.0116	.0134	.0078	.0904	.8159	-.5022	-.0096	-.0060	-.0173
21.000	.0118	.0132	.0071	.0883	.8432	-.4612	-.0086	-.0057	-.0179
22.000	.0121	.0124	.0064	.2266	.8621	-.2982	-.0067	-.0062	-.0181
23.000	.0124	.0117	.0064	.3577	.8601	-.1686	-.0057	-.0070	-.0177
24.000	.0129	.0117	.0064	.4298	.8669	-.0775	-.0052	-.0076	-.0181
25.000	.0134	.0116	.0069	.4950	.8577	-.0222	-.0051	-.0086	-.0181
26.000	.0141	.0120	.0072	.5219	.8607	.0149	-.0051	-.0092	-.0189
27.000	.0146	.0125	.0079	.5186	.8405	-.0273	-.0058	-.0100	-.0192
28.000	.0159	.0131	.0076	.5823	.8810	.1204	-.0047	-.0105	-.0214
29.000	.0162	.0135	.0081	.5533	8657	.0621	-.0054	-.0108	-.0215
30.000	.0174	.0140	.0078	.6103	.8981	.1997	-.0045	-.0111	-.0236
32.000	.0161	.0133	.0145	.4326	.5997	-.4621	-.0148	-.0142	-.0179
34.000	.0175	.0154	.0138	.5383	.6545	-.2848	-.0117	-.0159	-.0191
36.000	.0189	.0165	.0140	.5279	.6950	-.2437	-.0116	-.0163	-.0214
38.000	.0207	.0192	.0157	.4693	.6939	-.3102	-.0142	-.0172	-.0243
40.000	.0225	.0191	.0154	.5444	.7350	-.1686	-.0121	-.0188	-.0261
42.000	.0243	.0212	.0135	.4933	.8310	-.0739	-.0104	-.0166	-.0319
44.000	.0259	.0230	.0169	.4886	.7686	-.1827	-.0139	-.0198	-.0321
46.000	.0280	.0242	.0204	.5368	.7036	-.2218	-.0166	-.0242	-.0318
48.000	.0306	.0249	.0185	.5824	.7963	-.0280	-.0128	-.0242	-.0369
50.000	.0320	.0263	.0158	.5749	.8720	.1008	-.0101	-.0215	-.0426
52.000	.0343	.0281	.0160	.5855	.8866	.1441	-.0098	-.0222	-.0463
54.000	.0370	.0271	.0205	.6951	.8397	.1933	-.0106	-.0304	-.0436
56.000	.0418	.0282	.0228	.7727	.8581	.3371	-.0092	-.0364	-.0471
58.000	.0471	.0337	.0287	.7052	.7963	.1326	-.0153	-.0422	-.0521
60.000	.0489	.0372	.0389	.6632	.6218	-.1737	-.0272	-.0507	-.0472
62.000	.0557	.0449	.0414	.6061	.6797	-.1714	-.0307	-.0522	-.0592
64.000	.0563	.0470	.0432	.5810	.6631	-.2240	-.0339	-.0525	-.0600
66.000	.0570	.0572	.0415	.3582	.7357	-.3687	-.0418	-.0413	-.0727
68.000	.0568	.0614	.0501	.3452	.6435	-.4963	-.0547	-.0455	-.0681
70.000	.0629	.0559	.0474	.5170	.6871	-.2667	-.0404	-.0545	-.0714

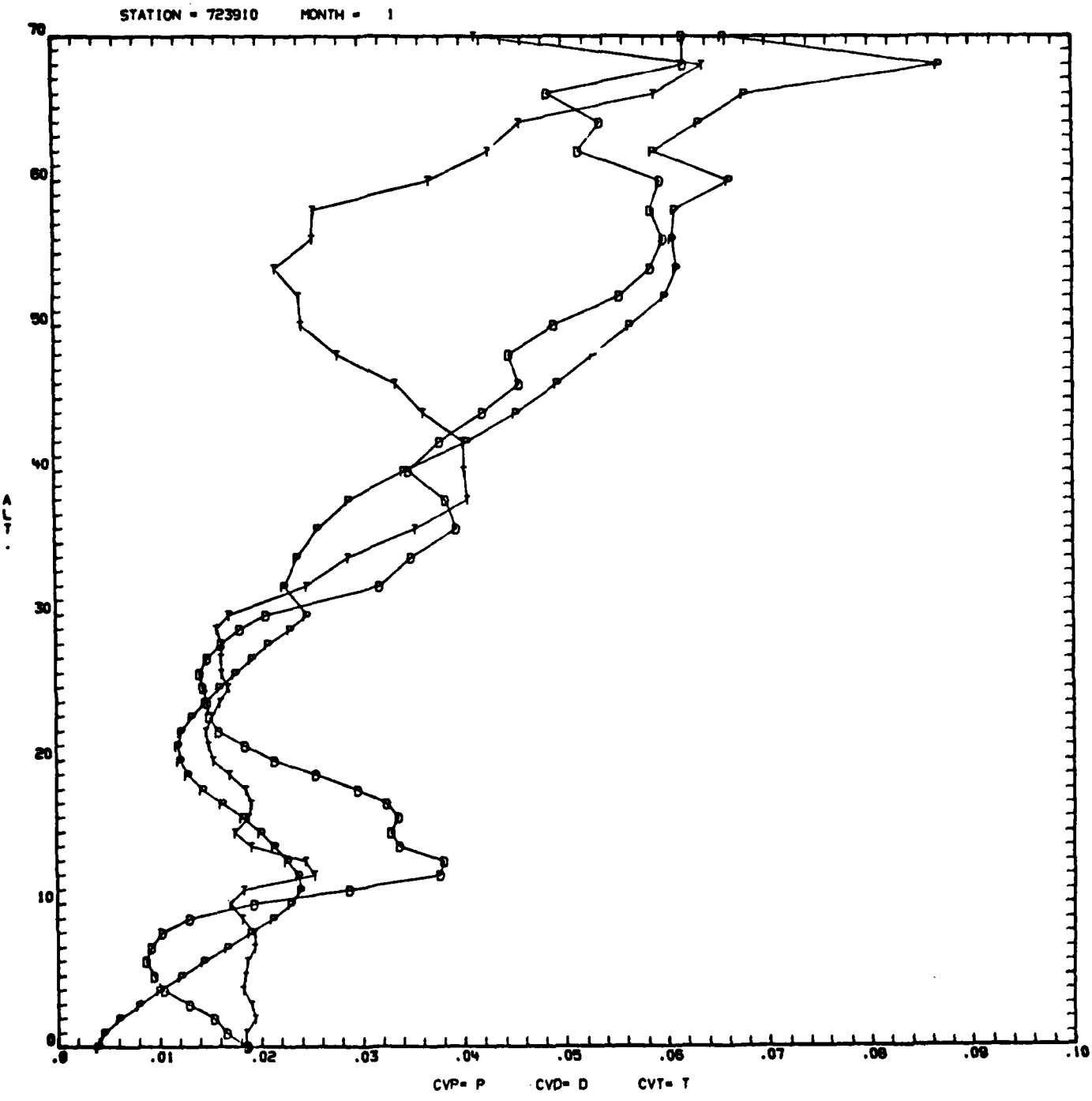
STATION = 723910 MONTH = 1
70
60
50
40
30
20
10
0
.0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
CVP= P
CVD= D
CVT= T

Figure B-13.

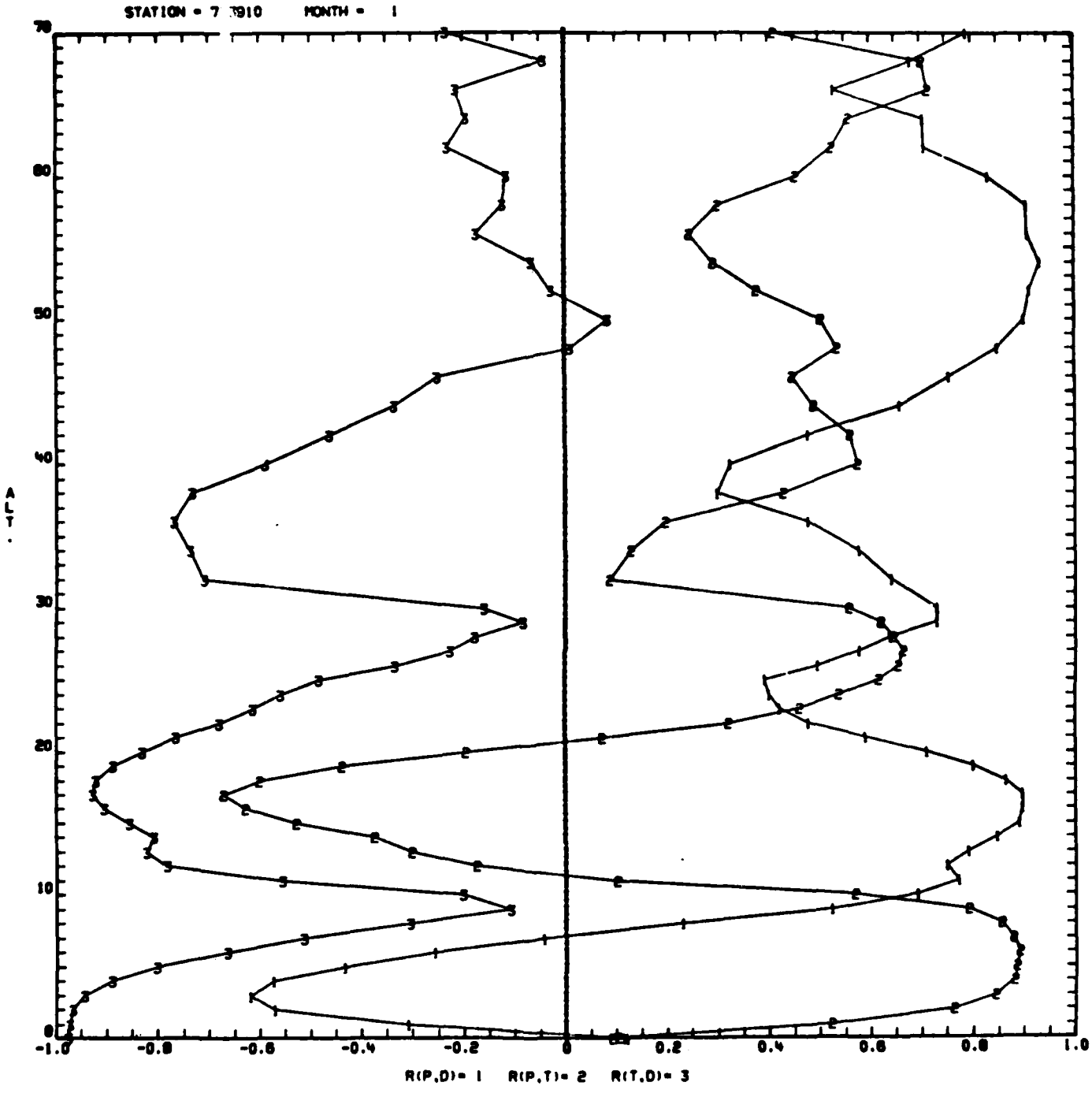
STATION = 7 7910 MONTH = 1
70
60
50
40
30
20
10
0
ALT
-1.0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1.0
R(P,D)= 1 R(P,T)= 2 R(T,D)= 3

Figure B-14.

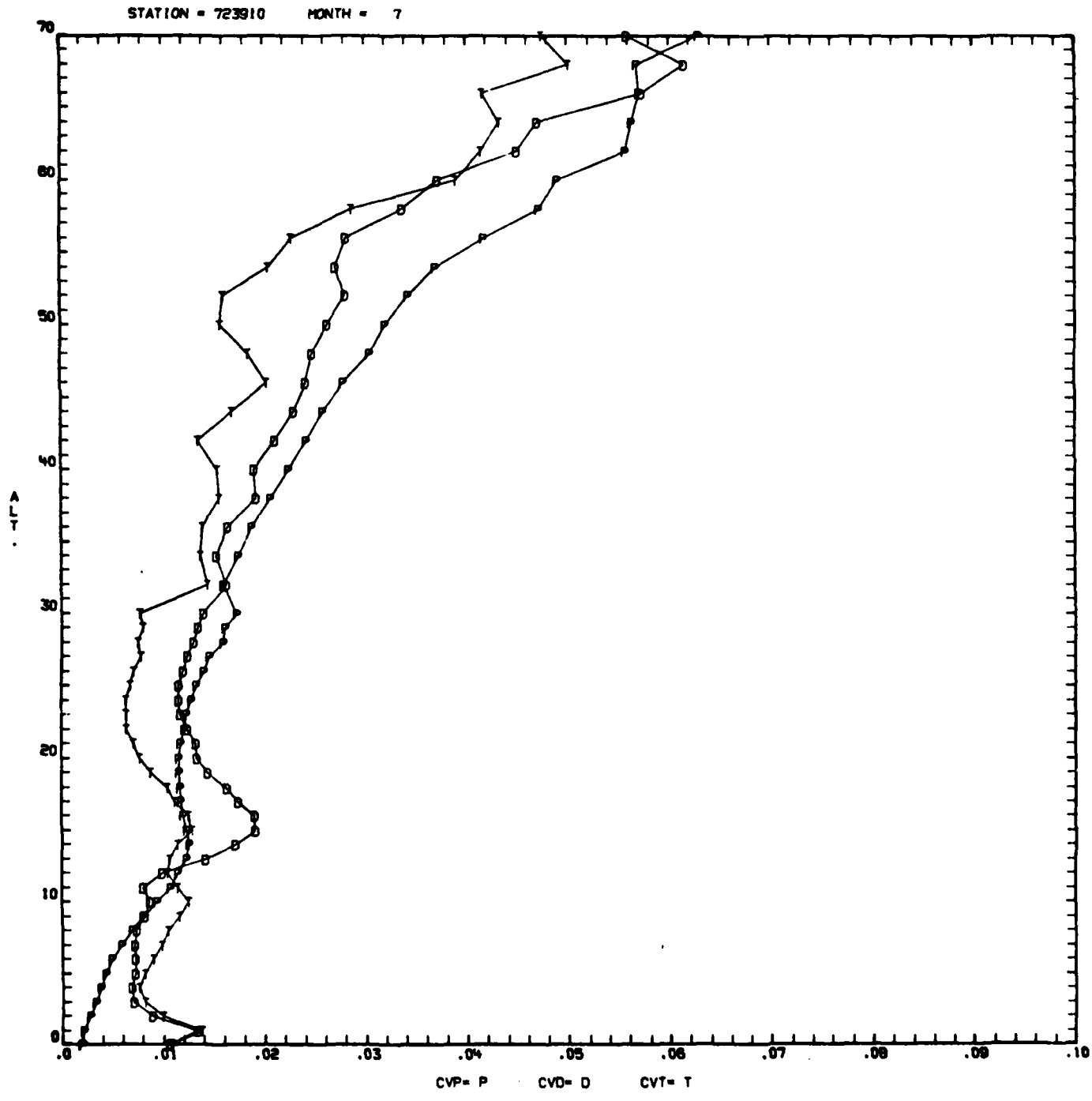
STATION = 723910 MONTH = 7
70
60
50
40
30
20
10
0
ALT
.0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
CVP= P CVD= D CVT= T

Figure B-15.

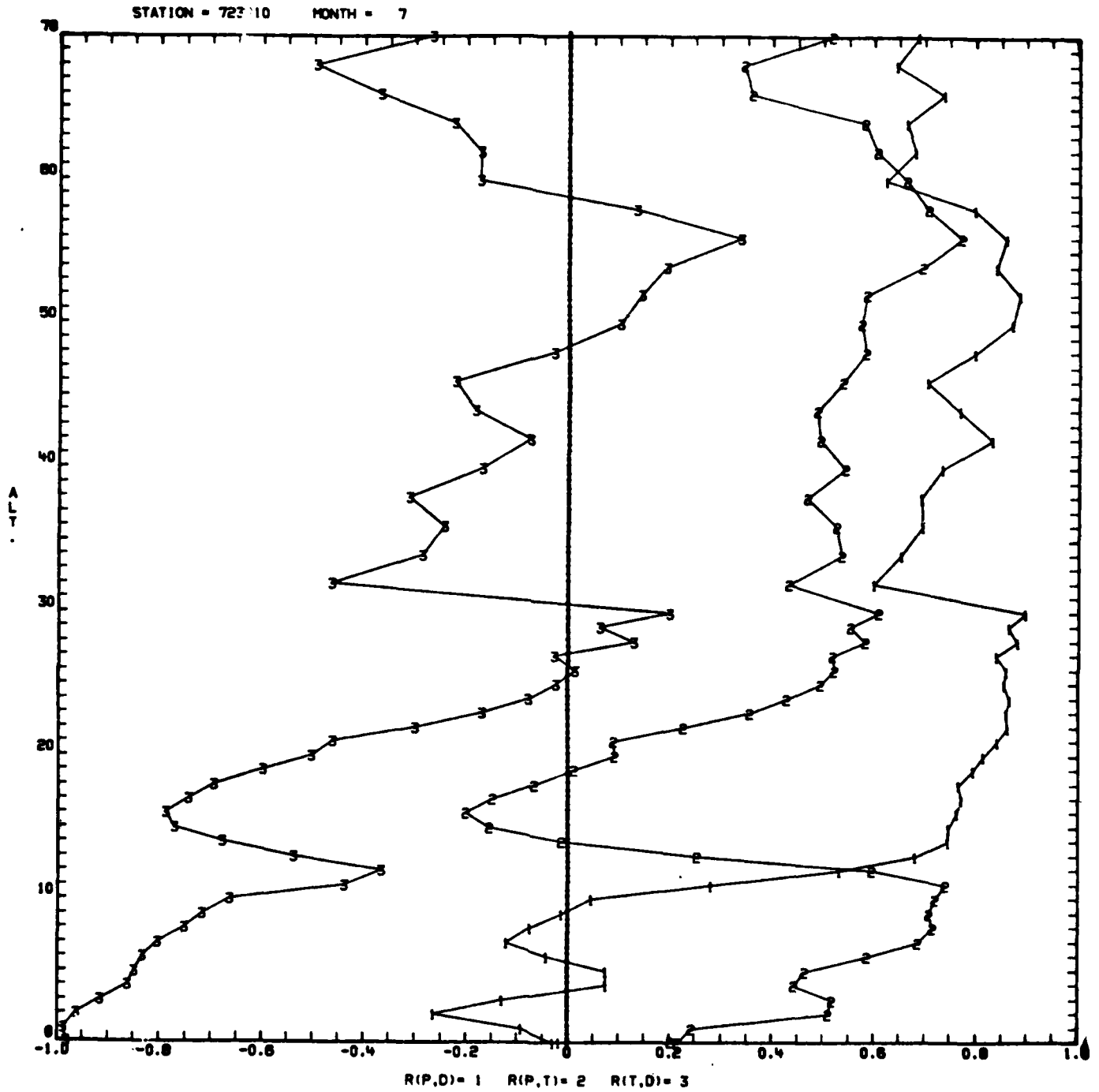
STATION = 723 10 MONTH = 7
ALT
0
10
20
30
40
50
60
70
-1.0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1.0
R(P,D)= 1 R(P,T)= 2 R(T,D)= 3

Figure B-16.

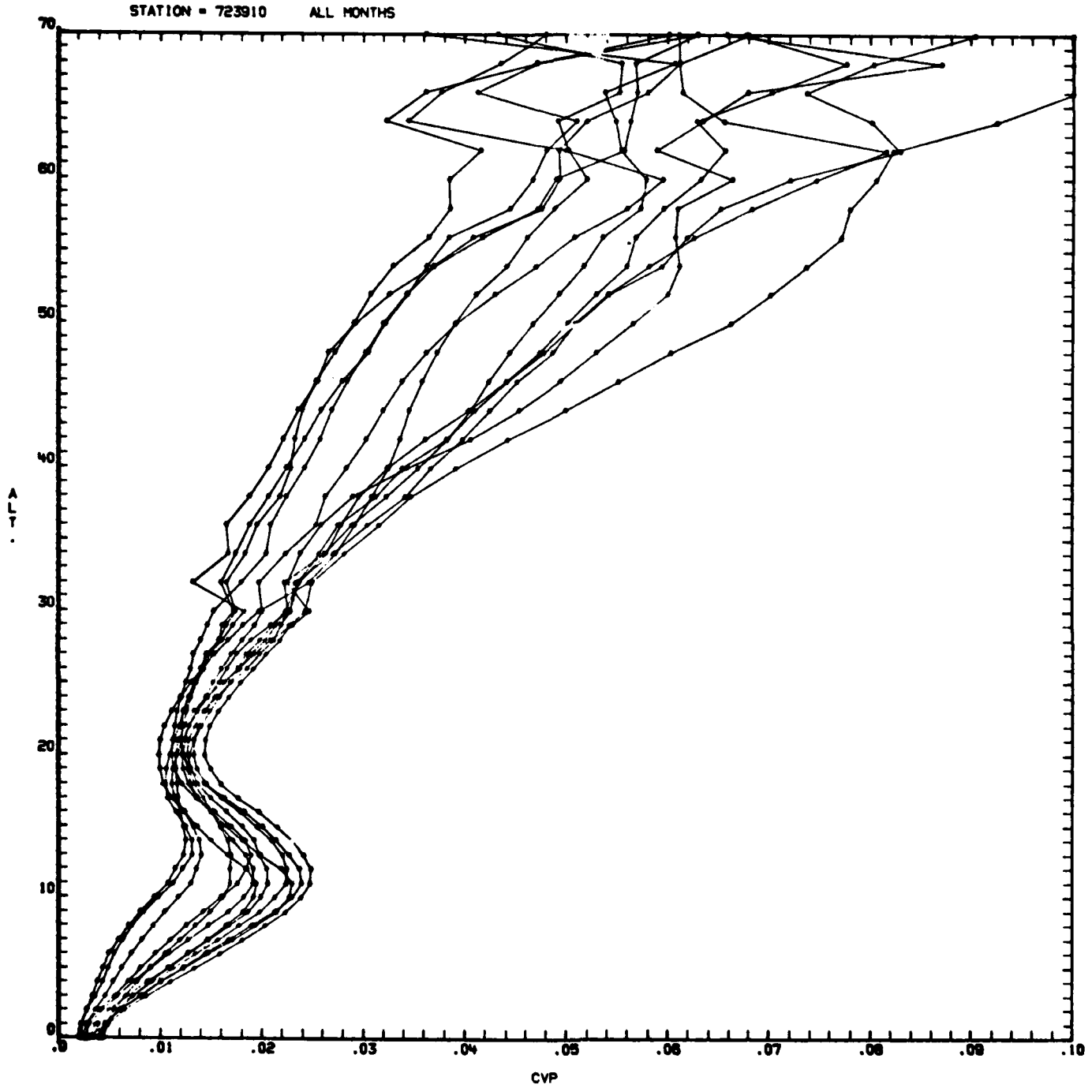
STATION = 723910 ALL MONTHS
70
60
50
40
30
20
10
0
ALT.
.0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
CVP

Figure B-17.

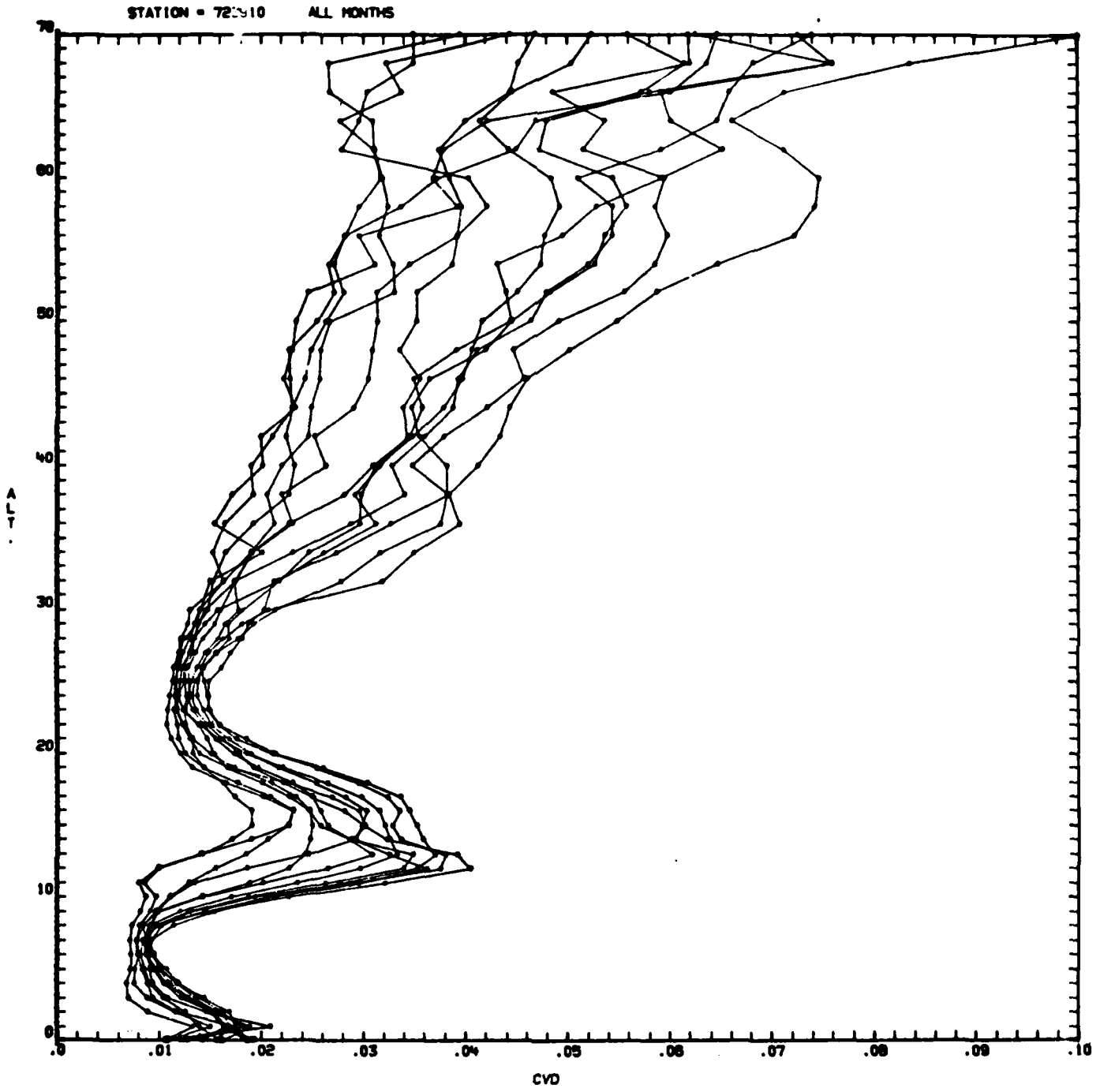
STATION = 72?910 ALL MONTHS
70
60
50
40
30
20
10
0
AGL
.0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
CVD

Figure B-18.

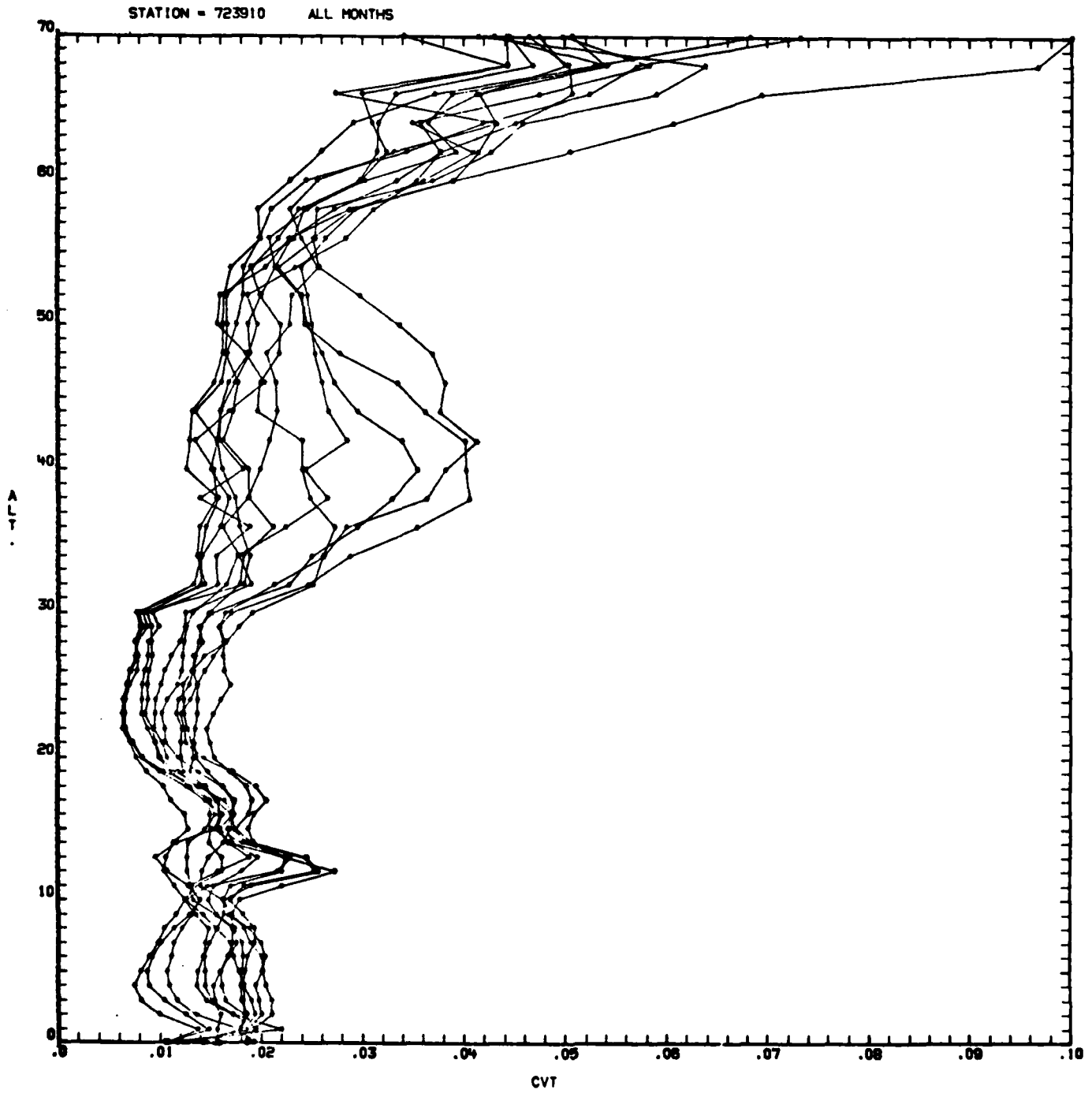
STATION = 723910 ALL MONTHS
70
60
50
40
30
20
10
0
ALT.
.0
.01
.02
.03
.04
.05
.06
.07
.08
.09
.10
CVT

Figure B-19.

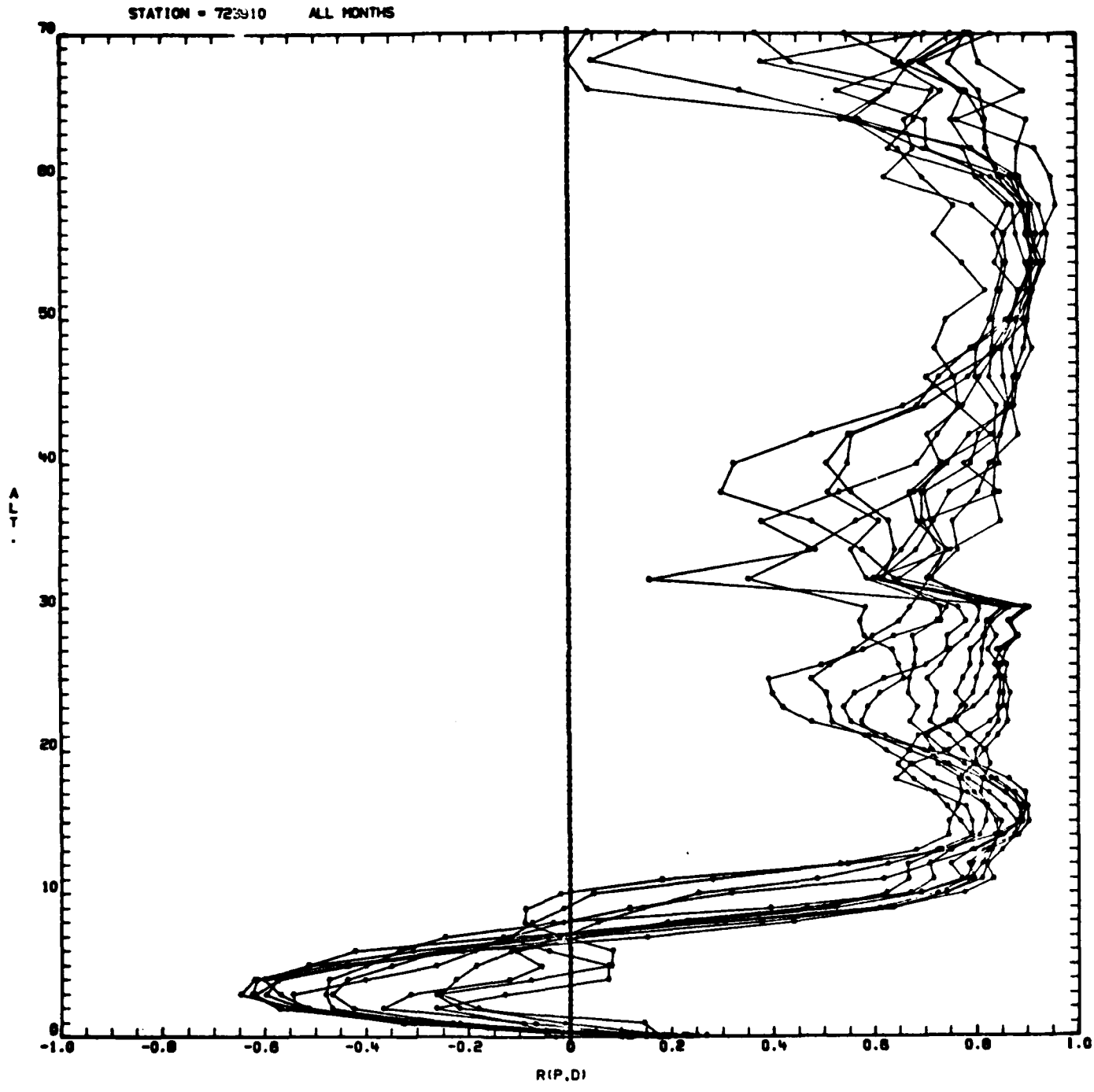
STATION = 723910 ALL MONTHS
70
60
50
40
30
20
10
0
ALT.
-1.0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1.0
R(P,D)

Figure B-20.

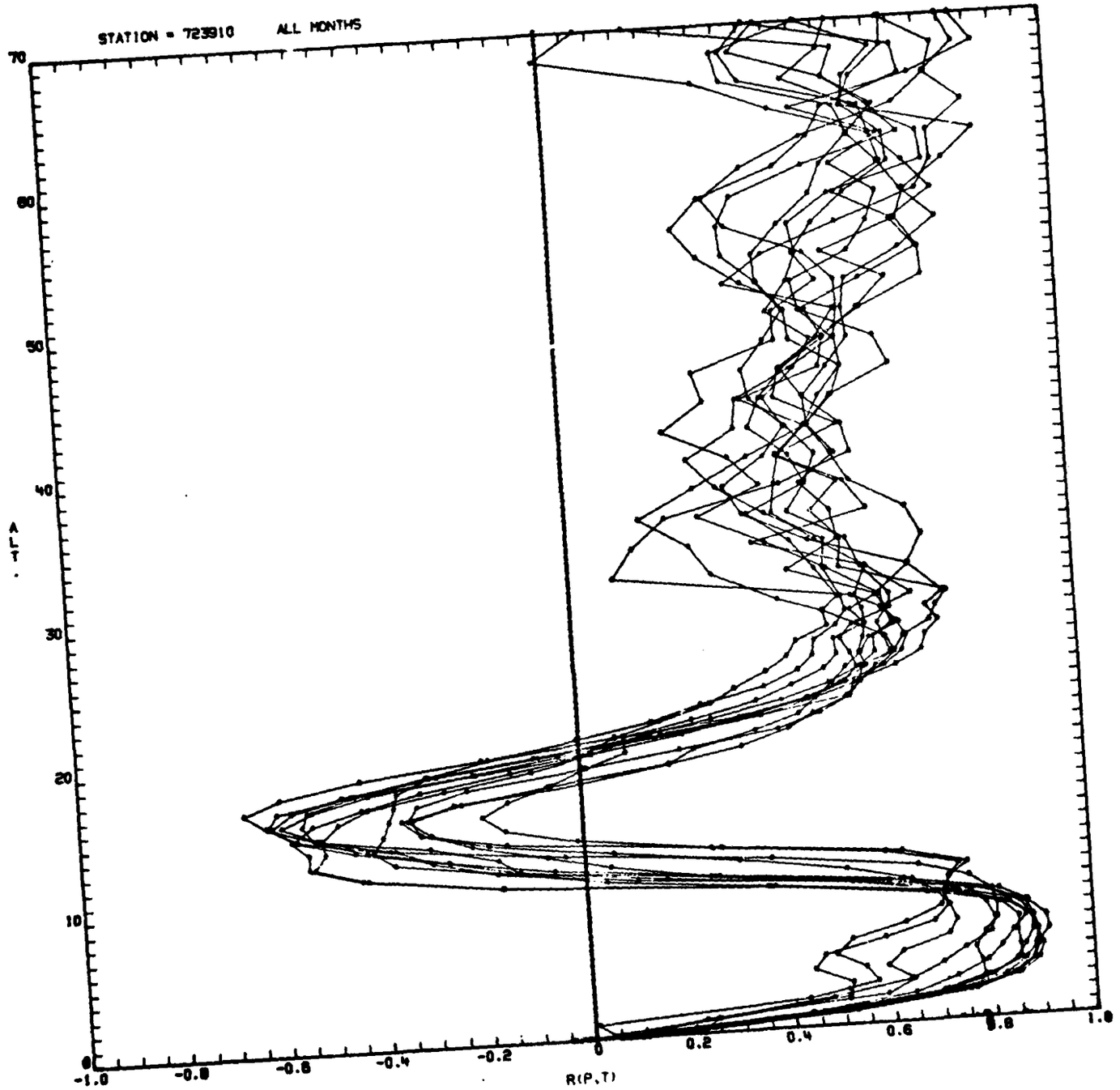
STATION = 723910
ALL MONTHS
70
60
50
40
30
20
10
0
ALT.
-1.0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1.0
R(P,T)

Figure B-21.

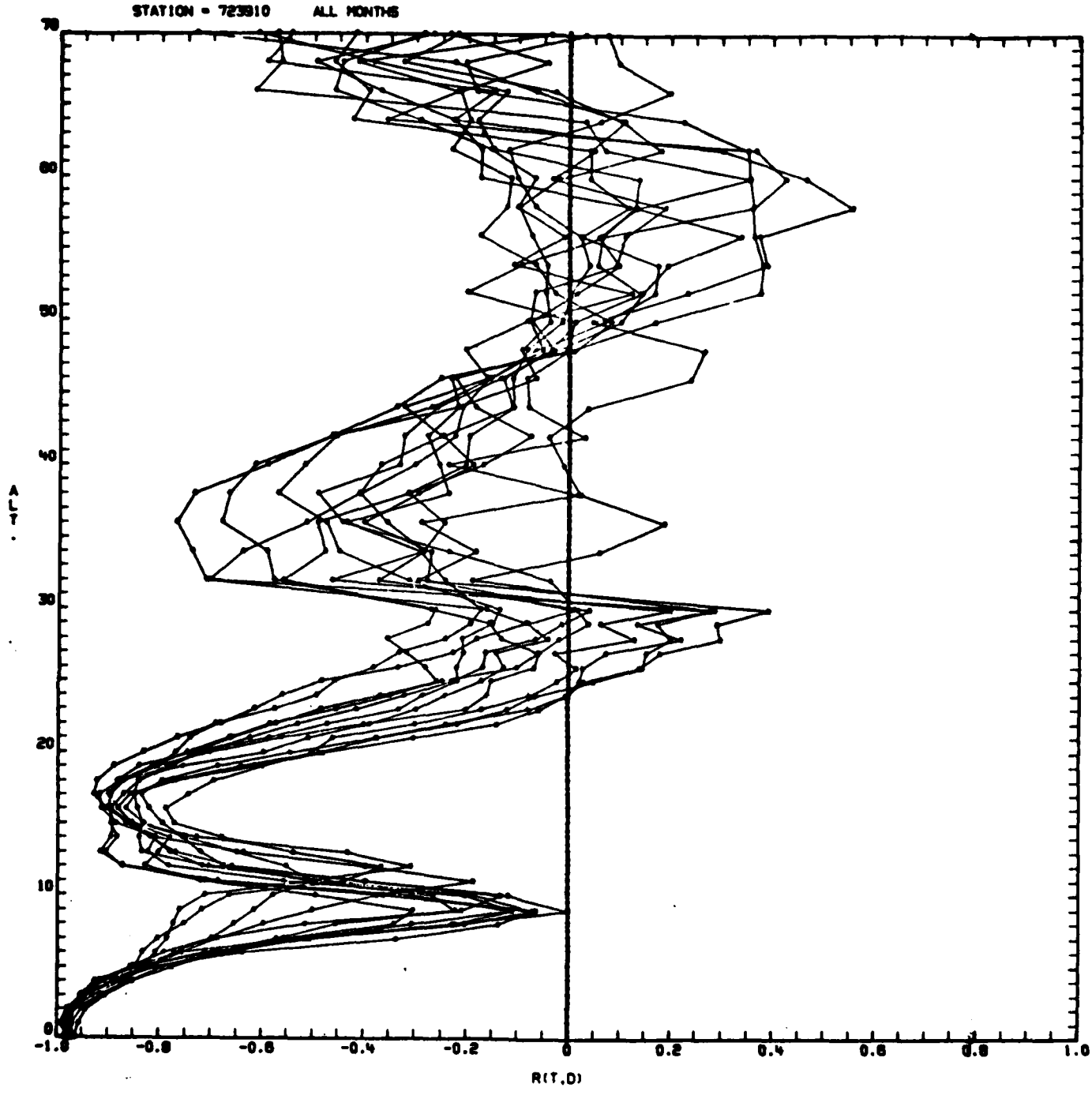
STATION = 723810 ALL MONTHS
70
60
50
40
30
20
10
0
ALT.
-1.0
-0.8
-0.6
-0.4
-0.2
0
0.2
0.4
0.6
0.8
1.0
R(T,D)

Figure B-22.